

AD-A135528

5

Industrial Mobilization: The Relevant History

Roderick L. Vawter

DTIC
ELECTE
DEC 7 1983

S D

H

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited



An Industrial College of the Armed Forces Study
in Mobilization and Defense Management

DTIC

S D

DEC 7 1983

H

DTIC FILE COPY

National Defense University

Industrial Mobilization: The Relevant History

Roderick L. Vawter

An Industrial College of the Armed Forces Study
in Mobilization and Defense Management

Revised Edition

1983



National Defense University Press
Fort Lesley J. McNair
Washington, DC 20319

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>eth</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

THE MOBILIZATION AND DEFENSE MANAGEMENT STUDIES

In cooperation with the Industrial College of the Armed Forces, the National Defense University Press publishes occasional studies on mobilization and defense management for distribution to a broad community of interested readers. In addition, the NDU Press publishes the National Security Affairs Monograph Series, essays, books, issue papers, reports, and conference proceedings.

Unless otherwise noted, NDU Press publications are uncopyrighted and may be quoted or reprinted without permission. Please give full publication credit.

Order Information. Additional printed copies of NDU Press publications are sold by the Superintendent of Documents, US Government Printing Office (GPO), Washington, DC 20402. Order directly or through your local GPO bookstore. NDU Press publications are also sold in facsimile copy: registered users should contact the Defense Technical Information Service, Cameron Station, Alexandria, VA 22314; the general public should contact the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

DISCLAIMER

Opinions, conclusions, and recommendations expressed or implied within are solely those of the author(s), and do not necessarily represent the views of the National Defense University, the Department of Defense, or any other Government agency.

DISTRIBUTION STATEMENT

Cleared for public release; distribution unlimited.

CONTENTS

	Page
FOREWORD	v
PREFACE	vii
THE AUTHOR	viii
EXECUTIVE SUMMARY	ix
Chapter	
1. STATEMENT OF PROBLEM	1
Industrial Base Problems	1
Mobilization Defined	4
2. HISTORY OF INDUSTRIAL MOBILIZATION PRIOR TO 1950	5
Period Between World War I and World War II	5
World War II	7
Period Following World War II	8
3. HISTORY OF KOREAN WAR ERA	13
NSC-68	13
Korea/Defense Production Act	15
Office of Defense Mobilization	16
Mobilization Goals	16
Organization	18
Government Support of Expansion	20
Expansion of Military Production	22
Economic Expansion	25
Mobilization Base Concept	30
Maintenance of the Mobilization Base	36
Civil Defense: A Shift in Focus	40
Summary of the Korean War Era	41

	Page
4. INDUSTRIAL MOBILIZATION PLANNING IN THE YEARS BETWEEN KOREA AND VIETNAM	45
DOD Industrial Mobilization Programs	45
Requirements	46
Preferential Planning List	46
Production Allocation Program	47
Service Application of DOD Policy	48
5. VIETNAM WAR ERA	51
Joint Logistics Review Board	51
Industry Advisory Council	59
6. DEFENSE INDUSTRIAL BASE ISSUES TODAY	69
Deterioration of the Defense Industrial Base	69
Excessively Restrictive Contracting Procedures	74
Need for Review of Tax and Profit Policies	75
Need for Leadership in Defense Industrial Planning ...	78
7. DEFENSE MOBILIZATION ISSUES	83
Reasons for a Mobilization Capability	83
Short-War Philosophy	85
Industrial Base Investment	87
Mobilization Requirements	88
Alternate Weapons	90
Planning With Industry	91
8. SUMMARY OF RECOMMENDATIONS FOR ACTION .	97
Establishment of National Policy	97
Department of Defense Policy	98
Department of Defense Actions	99
ENDNOTES	101
SELECTED BIBLIOGRAPHY	109

FOREWORD

Industrial mobilization planning is an old idea in the history of modern warfare. In the United States, in fact, the National Defense Act of 1920 required the Federal Government to conduct such planning. Current reforms were inspired when, in 1978, a series of mobilization exercises revealed serious and dangerous deficiencies in mobilization planning.

Since its inception, the Industrial College of the Armed Forces (ICAF) has been closely associated with industrial mobilization planning. The College recently modified its curriculum to place new emphasis on the study of industrial mobilization. One of the initial products of that emphasis, which won the Commandant's Award for Excellence in Student Research, is this analysis by Mr. Roderick L. Vawter.

The basic premise of this historical study is that industrial mobilization lessons of the past provide answers for many of today's problems. The author contends that current industrial mobilization planners should draw lessons more from the Korean War effort than from World War II. The Korean mobilization effort supported not only the demands of that war, but also the readiness needs to counter an anticipated Soviet attack. After describing the Korean experience in detail, the author examines changes in industrial mobilization planning that evolved as the nation perceived an easing of the Soviet threat. He highlights problems that, should they remain unsolved, ultimately would preclude effective industrial mobilization planning. Finally, he recommends realistic actions to restore effective planning.

The Industrial College is pleased to present this study, the first to be published in cooperation with the National Defense University Press. We hope such studies will shed new light upon mobilization, industrial preparedness, and defense management.



RONALD E. NARMI
Rear Admiral, USN
Commandant, Industrial College
of the Armed Forces

PREFACE

I undertook this study while a student at the Industrial College of the Armed Forces. Since I had direct responsibilities for industrial mobilization planning in my prior position on the Department of Army staff, this opportunity to perform mobilization research was one I welcomed.

The original purpose of the research was to develop an alternative perspective to the much maligned system of mobilization planning between the Department of Defense and industry. As my study of history led to a broader, more fundamental understanding of industrial mobilization, it became clear that the original purpose was much too narrow and, in fact, wrong in its basic premise. Instead, I adopted a more useful goal, i.e., to describe and analyze the history of industrial mobilization in order to: (1) provide a basis for offering a set of broad recommendations; and (2), contribute to others' understanding, supporting, thereby, the renewal of mobilization planning which was then starting in the Executive Branch.

Since I completed this study, several of the recommendations have been implemented, not as a result of the study, but because the need for viable mobilization planning is increasingly apparent. Nonetheless, because they provide additional approaches for revitalizing industrial mobilization capabilities, this study's recommendations remain current and useful.

I would like to thank my faculty advisers, Captain Donald Carson and Colonel Leo Pannier, for being ideal sponsors, allowing me to make my own way as I could, but ready with their help when I needed it. Mrs. Janet Williams requires special thanks for her perseverance in converting my writing into a finished manuscript. And finally, I would like to thank my wife, Jacki, for enduring a lonely spring as I struggled through the final manuscript.

RODERICK L. VAWTER

vii

PRECEDING PAGE BLANK-NOT FILMED

THE AUTHOR

Mr. Roderick L. Vawter is a Senior Fellow, Mobilization Concepts Development Center, National Defense University. He received his BS from Illinois State Normal University in 1961. He has completed graduate courses in Public Administration at George Washington University, Washington, D.C. and has served as an Instructor at the Army Materiel Command Ammunition School.

Mr. Vawter served as an Army Industrial Specialist in the Office of the Deputy Chief of Staff for Logistics, Department of the Army, Washington, D.C. In this position he was responsible for programming and budgeting a major portion of the Army's ammunition industrial base required for mobilization. Mr. Vawter was also an Industrial Specialist, Plans, Policy and Management Division, Office of the Deputy Chief of Staff for Research, Development and Acquisition, Department of the Army. In this capacity he was responsible for industrial preparedness planning, policy, and guidance for Headquarters, Department of Army.

Mr. Vawter graduated from the Industrial College of the Armed Forces, where he received the Commandant's Award for Research in recognition of this study of the history of industrial mobilization.

EXECUTIVE SUMMARY

The Army's identified industrial mobilization base, consisting of Government-owned facilities and equipment and the supporting private sector industrial base, is inadequate to support the Army's materiel needs in the event of a war. Similar conclusions can be drawn about the capability of the industrial base to support the Air Force, Navy, and Marine Corps.

In the area of industrial mobilization, experience from the past few decades provides answers for today. The primary lessons are not from World War II, but from the mobilization effort of the Korean War era. Fearing a Soviet atomic attack on the United States itself by 1954, the country reacted to the Communist invasion of South Korea with a mobilization buildup. In the context of an expanded economy to provide both guns and butter, the United States set a national goal to attain a state of mobilization readiness by 1954; in other words, to achieve preparedness in terms of men under arms, military equipment, the stockpiling of critical raw materials, reserve military production capacity, and basic industrial capacity to wage war on short notice. The effort was monitored from the Executive Office of the White House by a separate agency with authority to direct actions in the executive branch to achieve mobilization readiness. The defense industrial base and the basic economy were expanded to achieve a mobilization base providing the necessary capacity to permit rapid expansion of production to meet essential military and civilian requirements in the event of a full-scale war. Implicit in the mobilization base concept was the conversion of industry to military production through mobilization planning.

Over time, the national policy of mobilization readiness and all it entailed has been set aside for other national goals, such as envi-

ronmental quality and social change, to the point that the nation no longer has a timely industrial mobilization capability.

A national goal should be to make the industrial capability of the United States a realistic deterrent to Soviet aggression and a powerful addition to our war-fighting ability should deterrence fail. To achieve that goal, we must reestablish a national policy and goal for mobilization readiness, and, throughout the executive branch, pursue specific actions to support that goal.

x

Chapter 1

STATEMENT OF PROBLEM

The Army's industrial mobilization base, consisting of Government-owned facilities and equipment and the supporting private sector industrial base, is inadequate to support the Army's materiel needs in the event of a war. This conclusion was a central finding of the NIFTY NUGGET mobilization exercise of 1978¹ and was reconfirmed in the follow-on mobilization exercise of 1980, PROUD SPIRIT.² While this finding specifically addresses an Army issue, the same conclusion can be drawn about the capability of the industrial base to support the Air Force, Navy, and Marine Corps.

Similar conclusions were drawn by a recent House Armed Services Committee Defense Industrial Base Panel which stated that war reserves are dangerously low, that these reserves could support only the shortest of short war scenarios, and that the industrial base is not capable of surging production rates in a timely manner to meet a national emergency.³

In the event of major war, the identified industrial base dedicated to the Army would be unable to produce sufficient materiel to support combat consumption before reserve stockpiles were exhausted. Two separate issues are implicit in this statement: war reserves are inadequate, and the dedicated industrial base is too small and too slow. As a result, the Army's ability to fight a conventional war of any extended duration must be seriously questioned.

Industrial Base Problems

There are two separate sets of problems relating to the defense industrial base. The first set of problems, those receiving most attention now, are associated with current production to satisfy peacetime procurements to equip the forces and fill war re-

Statement of Problem

serve stockpiles. Current Army and Department of Defense (DOD) procurement programs are plagued by rising costs, long lead times, and poor quality, among other problems, which, in many cases, reflect the problems of United States industry as a whole. Many of the solutions of a national program of reindustrialization will have direct, positive effects on the defense industry as well.

A national, broad-based reindustrialization will create a solid foundation for defense production but the current nature of defense procurements will tend to mitigate any broader improvements. Notwithstanding substantial dollar expenditures, current defense procurement is characterized by very low production levels, much lower than levels required to actually fight a hot war. These low levels of production, coupled with instability from year to year, absolutely preclude an efficient defense industry. Over time, the defense industrial base has eroded because potential producers have withdrawn to more stable and profitable private business.⁴ The stretching of lead times also means that the base is not responsive, in a peacetime mode, to demands for rapid expansion of production. This is a problem for which the single best and simplest answer is to expand and stabilize defense procurement programs.

The second problem, which draws much less attention, concerns the capability of the Nation's industrial base to mobilize for the production of military materiel in the event of a major war and to expand production in a situation short of declared war, that is, surge. The potential magnitude of the production increase in a broad mobilization can be predicted from the experiences of World War II, when the military portion of the gross national product (GNP) peaked at 45 percent in 1944.⁵ Annual production rates attained in that war included 50,000 aircraft, 20,000 tanks, 80,000 artillery pieces and 500,000 trucks.⁶ Current military production rates for these same items are in the hundreds per year.

These two problems are inextricably intertwined. To the extent that the peacetime defense industrial base is healthy, then rapid expansion for emergencies short of war and for mobilization for a major war will be significantly enhanced. However, solving the first problem will not provide an adequate solution to the second. Peacetime procurements will never match those required in an all-out mobilization. Mechanisms must be in place to enable the rapid expansion of defense spending, to include materiel procurements, from the current 6 to 7 percent of GNP to something like the 45 per-

cent reached in World War II. Surprisingly, that peak achieved in 1944 did not represent the full potential of the war economy. There was still room to expand defense spending, if the need had arisen. In an absolute sense, a state of total mobilization was not achieved in this country during World War II.⁷

A mobilization on the magnitude of World War II would result in a defense budget not of billions of dollars but of a trillion dollars, which would be well within the capability of the country.⁸

Mobilization Defined

Mobilization is a term that implies different things to different people. In this paper the terms *surge*, *full mobilization*, and *total mobilization* are used as the defense establishment commonly understands them.

Surge is a term used within the Department of Defense to refer to the expansion of military production in a peacetime mode without the declaration of a national emergency. It is usually used in the context of a rapid increase in production of key war-fighting items in response to an emergency short of a declared war. Since the operative elements of a surge situation are peacetime and absence of a declared emergency, all the constraints of doing business in peacetime are limiting factors in a "surge" of defense production. This point is emphasized because some observers tend to use "surge" and "mobilization" to mean the same thing, whereas DOD maintains a distinction.

Mobilization is used to refer to the rapid expansion of military production to meet materiel demands in a war-fighting situation. It involves a declaration of national emergency by the President and a significant change in the way the DOD and the Nation do their business. Many of the constraints of peacetime procurements, including the voluntary nature of the public-private relationship, are removed. The various emergency powers of the President are activated, and the whole business of procuring materiel is put on a basis different from that of peacetime. As most people are aware, the Vietnam War was prosecuted without a new declaration of national emergency or a mobilization of the economy.

Full mobilization refers to mobilization to support the existing or program force structure. In the case of the Army, requirements

Statement of Problem

are developed to support a 24-division force, and all prewar planning is based on this size constraint. Similarly, the other services base their planning on a specific force structure.

Total mobilization, in contrast, describes expansion beyond existing force structure after M-Day (mobilization day or the first day of a declared war). In terms of this definition, the last total mobilization this country experienced was World War II. The term implies an absolute state of mobilization, a movement to the limits of the ability of the economy to support war, but, as we have already noted, this country did not actually reach the limit in World War II. There was still room for further expansion in 1944 and 1945, if it ultimately had been required.

The distinction between full and total mobilization relates to the way planning is done within DOD. All acquisition planning is based on the requirements of a full mobilization of the planned force structure against a specific scenario of expected war-fighting. For the purpose of programing and budgeting for a peacetime military force, there is no realistic alternative to setting finite goals and objectives against a specific force structure. The problem with this approach is that it tends to be bounded by issues of affordability and establishment of priorities between defense and other national goals, such as social, environmental, and economic goals. Simply stated, the planned force structure is limited by our willingness to invest in insurance against an eventuality we hope to avoid altogether. Moreover, the planned force structure may not represent the force structure actually required in a conflict precipitated by someone else, on their terms.

Within DOD, industrial mobilization planning is based on full mobilization, so there are severe constraints on the scope of the planning done. The effect of these constraints, from a quantitative standpoint, is that significant elements of the Nation's industrial base are not seriously included in mobilization planning. The Army and DOD tend to deal with a core of producers which are involved in current production and development, to the exclusion of other firms which, for one reason or another, do not do business with DOD and do not consider themselves part of the industrial base for military materiel. The huge capacity to produce military weapons inherent in the economy is ignored and unaccounted for, largely because of the limitations imposed by the philosophical approach of full mobilization.

Chapter 2

HISTORY OF INDUSTRIAL MOBILIZATION PRIOR TO 1950

To understand where we are today and where we ought to go from here, we need to review our history of industrial or economic mobilization. Most industrial mobilization histories focus primarily on World War II, its antecedents of World War I, and the period between those wars. The relevance of that period is indisputable, but even more important are the lessons from the experiences of World War II that were applied during the Korean War era. This chapter discusses the entire period, but draws most extensively from the 1950s for reasons that will become apparent.

Period Between World War I and World War II

World War I taught us that it was not enough to have an innate capability to produce large amounts of war materiel; some effective planning had to accompany that capability. Notwithstanding tremendous outlays of funds, we fought World War I, in essence, with guns, munitions, airplanes, and other materiel we borrowed or bought from the French and the English. A few examples of failed production are illustrative. Between April 1917 and June 1918, we spent \$4 billion for 50,000 pieces of artillery and the ammunition for these guns. Only 143 pieces of artillery actually reached American forces in time to be used. Although 23,405 tanks were ordered and \$175 million set aside to pay for them, none of these tanks was received for training, much less for use in Europe. After the armistice, we received 64 of the 6-ton tanks and 15 of the 3-ton variety. Why? There was a complete absence of plans prior to our entry into World War I, with a

History of Industrial Mobilization Prior To 1950

glaring shortcoming being the lack of defined requirements about what was needed and when.⁹

In reaction to these failings and in recognition of the fact that future wars could be expected to be total wars involving the whole of the economy, Congress passed the National Defense Act of 1920. This act charged the Assistant Secretary of War with "the assurance of adequate provision of mobilization of materiel and industrial organizations essential to wartime needs."¹⁰ To perform this mission, three basic industrial mobilization planning agencies were established in the 1920s: the Planning Branch within the Office of the Assistant Secretary of War, the Army Industrial College, and the Army and Navy Munitions Board. The Army Industrial College, established on 25 February 1924, was charged with the training of Army officers (later Navy and Marine Corps as well) in useful knowledge pertaining to the procurement of military supplies and industrial mobilization.¹¹

Although the initial focus at the Planning Branch was on procurement planning, industrial mobilization planning began as early as 1922. Very early in the process, an issue arose concerning the adequacy of the basic requirements, and that issue has been at the core of industrial mobilization planning throughout its history, including World War I.¹²

The planning system eventually resulted in a series of Industrial Mobilization Plans (IMP) that were published in 1930, 1933, 1936, and 1939. The early plans, however, did not consider the fact that the United States might have to assist wartime allies with munitions,¹³ and this basic flaw in our mobilization planning persists today.

The usefulness of the plans was the subject of so much debate that, when we made the transition into World War II, they were not used. Perhaps a better measure of the plans, however, was the evolution of organizations and economic controls in World War II in a pattern that eventually paralleled that envisaged by the IMP.¹⁴ A safe judgment of the value of the IMP process may be that it caused a great deal of productive thinking that shortened the mobilization process after the war started.

World War II

This section does not attempt to discuss World War II industrial mobilization in depth, but only to identify some key features. As already noted, production rates for all military equipment hit truly prodigious levels, commensurate with the growth of the defense share of the GNP from 11 percent in 1941 to 45 percent in 1944, after which it fell to 39 percent in 1945.¹⁵ Implicit in these statistics, however, is the fact that it took time to achieve the buildup of defense production. In addition to the expansion of production of military goods, a huge simultaneous effort was required to expand basic production capacity. During World War II, the Government built 1,600 separate new plants at a cost of \$12.7 billion and financed expansion of other plants at a cost of about \$6 billion.¹⁶

Lead time was required to achieve the ultimate production rates but the lead time was probably shortened somewhat by our accelerating materiel support of the Allies in 1939 and 1940. However, the lead time was not significantly reduced by any substantive mobilization planning prior to the start of the buildup. The message here for mobilization planners who set up planning systems after World War II was that rapid industrial mobilization cannot be accomplished from a standing start without prior planning and without a baseline defense industry.

Another point about World War II that needs to be mentioned is that much more than an industrial mobilization took place; there was, in effect, an economic mobilization as well. Instead of moving directly to the organizational schemes of the Industrial Mobilization Plan, the United States engaged in a hit or miss, evolutionary development of organizations and controls which, in the long run, directed our economy toward the goal of winning the war. In a classic sense, then, World War II was the total war not experienced by this country before or since. Controls were imposed on wages and prices; productive capacity and raw materials were allocated; and fiscal and monetary policies were directed toward controlling inflation and demand, and toward financing the war. Centralized manpower controls, however, were never achieved. There was not centralized registra-

History of Industrial Mobilization Prior To 1950

tion, as in Great Britain and Germany; nor were there compulsory labor assignments. Workers in 35 essential industries were "frozen", but this action simply required a worker desiring to move to a new job to obtain a certificate of availability.¹⁷ If other historical precedents have relevance in terms of future mobilization planning, so must the voluntary nature of manpower mobilization in World War II.

Period Following World War II

The period immediately after World War II is very much a mixed bag as regards mobilization planning. On the one hand, there was a clear recognition of the need to develop mobilization capability and procedures, as exemplified by the legislation passed, the organizations established, and the planning actually accomplished. On the other, as a result of an affirmative policy to make available to the civilian economy everything that might be useful in stimulating a renewed flow of goods, there was a wholesale disposal of Government-owned industrial facilities and a conversion back to a civilian economy. Because appropriations for maintenance were inadequate, many of the plants not sold off were allowed to deteriorate. Subsequently, it was estimated that the annual expenditure of \$10 million for the 5 years prior to the Korean War would have saved between \$200 and \$300 million in rehabilitation costs actually incurred to make facilities usable for the Korean War.¹⁸

Another specific example of shortsightedness that had an impact later was the dumping of Government-owned machine tools after World War II by the War Assets Administration at 15 cents on the dollar: 34 machine tool companies closed as a result of the loss of business. In 1951, the United States machine tool capacity was ostensibly only one-third what it had been at the start of World War II. In addition to the reduction of a vital industry, a skepticism was created that must have had a negative impact on the effort to reexpand the machine tool industry in the early 1950s.¹⁹

In contrast to the physical dismantling of the Arsenal of Democracy immediately after World War II, several key pieces of legislation specifically directed at achieving mobilization readiness were passed; in their original or amended forms, these acts are still relevant today. The first was the Strategic and Critical Materials Stockpiling Act of 1946, which provided for the acquisition and maintenance of the strategic stockpile, which still exists. The National Se-

History of Industrial Mobilization Prior To 1950

curity Act of 1947, which created the Air Force and the Department of Defense, also created the National Security Resources Board (NSRB). The NSRB was charged with the coordination of military, industrial, and civilian mobilization for the entire executive department. The act also gave legislative sanction to the Munitions Board, which had been reconstituted by Executive Order in 1945. The Munitions Board was charged with planning for the military aspects of mobilization. In practice, the NSRB concentrated on long-range planning, while the Munitions Board largely confined its activities to short-range planning, feasibility studies, and procurement coordination among the services.

Another act was the Armed Forces Procurement Act of 1947, which provided the military departments with the means of protecting and building up an industrial mobilization base by excepting contracts from competitive bidding when it was determined that facilities and suppliers should be retained in the interests of national defense.

Finally, the National Industrial Reserve Act of 1948 authorized the Secretary of Defense to retain surplus machine tools, manufacturing equipment, and industrial plants required to supply the needs of the armed forces for emergency production.²⁰

As a result of enabling legislation, and notwithstanding the lack of appropriations to maintain what industrial base still remained, the Munitions Board actively pursued industrial mobilization planning. Under the terms of the National Security Act, the Munitions Board prepared the Industrial Mobilization Plan of 1947, which was really a detailed plan for a plan. Several things are striking about the 1947 plan. First, the scope and detailed discussion of the various items that would have to be accomplished to prepare for a future mobilization were deeply influenced by the very recent experiences, good and bad, of the World War II industrial mobilization; planners appreciated the fact that what had worked earlier through improvisation might not work again. A second striking feature of the 1947 plans was the stated recognition that any mobilization plan or planning system would have to be accepted by the public; in particular the public would have to support the need for mobilization.²¹

To provide some background for the discussion of subsequent and current mobilization planning, a brief description of the contents of the 1947 plan may be useful here. The plan identified three time phases. Time Phase I extended from the present (peacetime) to that time when the President decides that mobilization for war is neces-

History of Industrial Mobilization Prior To 1950

sary. This was a break with the Industrial Mobilization Plans of the 1930s which implicitly assumed that M-Day (first day of mobilization) would be the first day of war. Several of the most important actions to be accomplished in Time Phase I were the development of war plans and military requirements and feasibility testing of those plans and requirements. Other actions included predetermination and allocation of production capacity through plant surveys and allocation between competing demands by the services; planning for wartime industrial and economic controls, to include wartime agencies; and creation of peacetime reserves for war. Regarding the reserves, the key features were the Strategic and Critical Materials Stockpile, created by the Act of 1946, and industrial plant and equipment reserves, to be drawn from the large establishment acquired during World War II. Time Phase I also recognized that manpower is essential, but it avoided proposing any manpower programs; it implicitly supported the need to provide adequate educational and health services to promote the general well-being of a technically trained citizenry.²²

Time Phase II was to begin with the decision by the President that mobilization was to be started and was to end with the declaration of a state of war by Congress. Essentially, the plans, programs, procedures and policies developed in Time Phase I were to be put into effect during Phase II, which could be very short or have a relatively long duration. Ideally, all would be accomplished prior to the outbreak of war. Military requirements would be adjusted as the strategic plans became more specific to include estimates of allied requirements. The wartime control agencies would be created, using the National Security Resources Board staff as a nucleus.²³

Time Phase III was to start with the declaration of a state of war by the Congress. It represented the culmination and final putting into place of all of the procedures and organizations planned during Phase I and initiated in Phase II. A General Director of National Mobilization would be the focal point for executive control over all the new agencies concerned with using the Nation's reserves in the war effort. Those new agencies would include Economic Stabilization, War Manpower, and War Production. The last would encompass multiple subagencies to manage transportation, food, housing, shipping, fuels, and the like.²⁴

In addition to the Industrial Mobilization Plan, 70 annexes to the plan were scheduled, of which 22 were actually in the process of being developed. One of the in-process annexes, Annex B, Office of

History of Industrial Mobilization Prior To 1950

War Production, was published along with the basic plan and provided details of the structure of the proposed Office of War Production.²⁵

Already mentioned as elements of Time Phase I planning were the predetermination and allocation of sources of supply, which were governed by Annex No. 47 of the 1947 plan, and were the precursors to industrial preparedness planning (IPP) as it exists today. The objectives of the plant survey and allocation program are as valid today as they were in 1947, and the most important are worth detailing here, as follows (emphasis added):

1. To determine *where essential* military items can be obtained
2. To *eliminate competition* among procurement agencies for output of a single plant
3. To *acquaint industry* with its task in wartime and to *encourage industrial planning* for rapid industrial mobilization
4. To promote orderly distribution of the initial production load of war requirements
5. To maintain a *current record of competent producers and their capacities*
6. To determine what required items cannot be provided by *conversion of private industry*, in order to establish requirements for construction of new facilities
7. To *minimize requirements for new construction in wartime* by proper utilization of existing facilities.²⁶

This set of objectives is nothing short of a description of how an optimal IPP program should be structured. The fact that the Department of Defense and the armed services do not meet, or in fact, even recognize all these objectives should be the real issue in any discussion about the adequacy of current industrial preparedness planning. A later section of this report examines the forces that caused industrial preparedness planning—and industrial mobilization in general—to be downgraded in the national scheme of things.

A final point about the post-World War II period is that the specific mechanisms of Annex 47 were put into effect, and mobilization planning with industry was being accomplished to meet the objectives just outlined. Not only were the services performing planning, but individual industrial firms were developing internal mobilization

History of Industrial Mobilization Prior To 1950

plans in reaction to the Munitions Board guidance. American industry recognized and accepted the concept of planning for an industrial mobilization.

Chapter 3

HISTORY OF KOREAN WAR ERA

This discussion of the Korean War era focuses not on the military events but on the significance of the conflict as a catalytic event that crystallized the differences between the United States and the USSR. The war triggered industrial mobilization not just to respond to the military needs of that war, but also to establish military power capable of offsetting Soviet designs of world domination.

NSC-68

A key to understanding United States industrial mobilization policies as they evolved over time is *NSC-68, A Report to the National Security Council*, dated 14 April 1950. NSC-68 was the product of a joint State-Defense study effort directed by President Truman to provide background information and guidance on nuclear weapons policy, in response to a strong indication that the Soviet Union had achieved an atomic explosion in August 1949.

Tension and confrontation with the USSR had been growing since the end of World War II. China had become Communist; the economies of Europe and Japan had not yet recovered from the ravages of World War II. A basic premise of NSC-68 was that the Soviet Union had achieved a fission bomb capability and possibly a thermonuclear capability. Furthermore, the atomic capabilities of the USSR could be expected to grow to the point that, by 1954, a decisive initial attack could be delivered upon the United States as we did not have, in existence or programed, adequate strength to preclude such an attack.²⁷

History of Korean War Era

The United States at that time had significant economic superiority over the Soviet Union, but the NSC-68 report predicted that the gap would close over time because of the proportionately larger Soviet investment in capital equipment. The immediate discrepancy in economic strength, however, did not translate into military strength. The USSR was virtually mobilized, and the United States had scarcely drawn upon its potential. The economic gap between the two countries was paralleled by a gap in power between our potential capabilities and those actually used.²⁸

The option of doing nothing, of letting that gap in military power grow and not using the potential of the United States economy, was clearly unacceptable because the USSR had established a fundamental purpose to dominate the Eurasian land mass. To achieve that purpose, the Soviets had to eliminate the countervailing power of the United States, by whatever means available, including subversion or forcible destruction.

At the time, neither nation had thermonuclear weapons. Given the belief that the USSR would soon acquire a thermonuclear capability, the United States had no choice but to build a thermonuclear capability as rapidly as possible. The United States also believed it to be imperative, however, to increase as rapidly as possible our conventional air, ground, and sea strength and the strength of our allies so as to not be totally dependent upon atomic weapons. In order for the United States to have the option of holding atomic weapons in reserve only for use in retaliation against prior use by the USSR, the non-atomic military capabilities of the United States and its allies would have to be fully developed. And, only by our having an overwhelming atomic superiority might the USSR be deterred from employing atomic weapons against us.²⁹

NSC-68 also proposed that the United States should take the lead in developing a healthy international community and seek to contain the Soviet System—that is, by all means short of war, seek to thwart further expansion of Soviet power and, ultimately, to modify Soviet behavior to conform to generally accepted international standards. Essential to the policy of containment was (and is) the maintenance of a strong military posture. Without a superior aggregate military strength, in being and *readily mobilizable*, a policy of containment would be no more than a bluff.³⁰

The ultimate goal of the United States was to create the political and economic conditions in the free world, backed by force suf-

ficient to inhibit Soviet attack, to force the Soviet Union to accommodate itself to those conditions and to negotiate a settlement on which the world could rely as an enforceable instrument of peace.³¹

How was this military expansion of nuclear and conventional forces to be accommodated, without drastic and unacceptable impact on the American people? By expansion of the economy. If the economy were to expand dynamically, the necessary buildup could take place without a decrease in the national standard of living, because the required resources would be siphoned off a part of the annual increase to the gross national product. The authors of NSC-68 looked back to World War II and noted that personal consumption expenditures rose by about one-fifth between 1939 and 1944, notwithstanding the huge war effort.³²

President Truman never explicitly approved NSC-68, but as will become obvious later in this report, the document was clearly the intellectual framework for the programs initiated a few months later.

Korea/Defense Production Act

The invasion of the Republic of South Korea on 25 June 1950, only 2 months after the completion of NSC-68, by a North Korean force trained, equipped, and inspired by the Soviet Union was perceived to be a part of the overall Soviet design of world domination. Coming on the heels of the NSC-68 review of Soviet intent and proposed actions that could be taken to thwart the Soviets, the invasion of South Korea had the same historical function as Pearl Harbor in World War II. It gave urgency and unanimity of purpose to the Nation that otherwise might not have emerged for some time.

In response to a Presidential request for legislation to aid in meeting defense needs while avoiding inflation, the Defense Production Act of 1950 became law on 8 September 1950. The stated purpose of the Act was to oppose aggression and promote peace, and to develop and maintain whatever military and economic strength necessary to carry out this purpose. The Act also provided for the diversion of materials and facilities from civilian use to military, and for the expansion of productive facilities beyond the levels needed to meet civilian demand. This was all to be accomplished, as far as practicable, with minimal strain and dislocation to the economy.³³

History of Korean War Era

Contained in the act were vast powers required to carry out the declaration of policy. A total of seven titles provided authority (1) to establish a priorities-and-allocation system; (2) to requisition personal property and condemn real property; (3) to expand productive capacity and the supply of metals, minerals, and other materials; (4) to establish wage and price controls; (5) to establish procedures to settle labor disputes; (6) to impose consumer and real estate credit controls; and (7) to encourage small-business participation in the program.³⁴

Office of Defense Mobilization

Initially, President Truman intended to accomplish mobilization within the existing structure of the Government, with the Chairman of the National Security Resources Board in charge of overall coordination. However, as tensions mounted following the Chinese intervention in Korea, it became appropriate to establish the special emergency machinery planned for the direction of national mobilization in the event of war.³⁵ Accordingly, on 16 December 1950, the President proclaimed the existence of a national emergency, declaring that "the increasing menace of the forces of Communist aggression requires that the national defense of the United States be strengthened as speedily as possible." That same day, President Truman created the Office of Defense Mobilization (ODM) and authorized the Director "to direct, control and coordinate all mobilization activities of the Executive Branch of the Government including but not limited to production, procurement, manpower stabilization and transport activities."³⁶ ODM was created as a policymaking and coordinating group, overseeing the rest of the executive agencies in the area of mobilization. The Director was made a member of the Cabinet and the National Security Council so that the mobilization effort would be tied into major security decisions and overall governmental policy.³⁷

Mobilization Goals

The Director of Defense Mobilization, Charles E. Wilson, outlined the following specific goals of the defense program in the first of his quarterly reports to the President, 1 April 1951 (emphasis added):

History of Korean War Era

1. To produce military equipment for our armed forces in Korea and at home, for aid to our allies and *for reserve stocks which would be available for the first year of full scale war* If, in spite of all efforts to prevent it, one should break out.

2. To provide *additional production lines* beyond those needed for current military production so that they will be available *in case of full scale war*, and to add to the stockpile of scarce and critical materials.

3. To *develop our basic resources* and to *expand our industrial capacity* so that in the long run we may *continue as large a military program as may be necessary* and at the same time *improve our standard of living—or in case of all out war so that we may have a powerful industrial base.*

4. Consistent with the above objective, to maintain a healthy and productive civilian economy.³⁸

Implicit in this statement of objectives is the fact that support of the Korean War was only a small part of the program that had been launched. More important was the preparation for a possible full-scale war with the Soviet Union, through the building of war reserves large enough to last 1 year and through a two-pronged approach to building a mobilization base. Dedicated military production lines larger than those required solely to support the Korean War effort, were to be built. Also the overall industrial base and economy were to be expanded so that the standard of living of the people could improve and military production could grow to whatever level necessary. Implicit in the objective of maintaining a healthy civilian economy was the recognition that special actions must be taken to preclude disastrous inflation and distortion in the economy, which would have negative effects on the long-term well-being of the Nation. To provide tools to fight inflation, therefore, Titles 4, 5, and 6 were included in the Defense Production Act.

The effect of all this is that, beginning in late 1950, this country undertook mobilization to get ready to fight the Soviet Union, if required to do so. The first quarterly report of 1 April 1951 set 1953 as the date by when we should aim to be ready to enter total mobilization.³⁹ In the fourth quarterly report of 1 January 1952, it appears (from several oblique statements regarding attaining some goals in 3 or 4 years and achieving steel and aluminum goals by 1954) that the date of required readiness had slipped to 1954.⁴⁰

History of Korean War Era

To clarify the events, let us examine the stages of mobilization. According to one author, there are three stages in the transformation of a peacetime, fully employed, economy to all-out war economy. The first is the "mobilization hump," which is the shifting of the economic system from normal peacetime pursuits to the production of a greatly increased quantity of war materiel and the expansion of productive capacity suitable to production of war equipment. The second stage, the period of "mobilization readiness," also described as a defense or garrison state, is a state of preparedness in terms of men under arms, military equipment, the stockpiling of critical raw materials, reserve military production capacity, and basic industrial capacity to wage war on short notice. The third stage is "total war," which means conversion of the economy to one purpose, to win whatever war the country is engaged in.⁴¹

The purpose of mobilization during the Korean War was to achieve the second stage, a "mobilization readiness" for total war, not with the ultimate goal of fighting such a war but to *avoid* fighting a total war. From the inception of the mobilization program of the United States, the long-term aim was to reach a state of readiness sufficient to enable us to cope successfully with any emergency. It is the degree of our current state of readiness that is a national issue today.

Organization

As has already been noted, the Office of Defense Mobilization was created to provide policy guidance and control, and to settle interagency differences. The operating activities were to be in the regular Government departments and the several emergency agencies that were created.

When the organizational structure was set up, two main functional areas, production and stabilization, were identified. The Defense Production Administration was created on 3 January 1951 to coordinate the industrial production effort and to centralize programing and coordination of the priorities and allocation function. The production activities of several agencies, most notable the National Production Authority in the Department of Commerce, were placed under the direction of the Defense Production Authority. Defense organizations for power, petroleum, solid fuels, and fisheries

were placed within the Department of Interior. The Department of Agriculture had responsibility for agricultural production for industrial uses, as well as food production and distribution. On 28 August 1951, the Defense Materials Procurement Agency was created and assigned the Title III functions of purchasing and making commitments to purchase metals, minerals, and other materials. This agency also was given the task of encouraging exploration, development, and mining of critical and strategic minerals and metals, a task that was subsequently passed to the Department of the Interior.⁴²

On 9 September 1950, a new and independent agency required by the Defense Production Act, the Economic Stabilization Agency, was created. The Administrator had the responsibility to maintain the stabilization of the economy and was directed to develop short- and long-range price and wage stabilization policies; he also was to establish price ceilings and to stabilize wages and salaries, where necessary. Organizations responsible to the Agency were the Office of Price Stabilization, created concurrently with the Agency, and the Wage Stabilization Board.⁴³

Other areas of mobilization activity identified in the organizational structure were manpower, transportation, foreign supplies and requirements, and scientific research. Within the Labor Department was a Defense Manpower Administration, responsible for recruitment, training, and utilization of manpower for defense production. Various committees were established to provide interagency approaches to the other areas identified.

In addition to the various operational agencies that were created, a Cabinet-level group was established to advise the Director and to provide the means of coordinating the policies and activities of the various agencies and departments involved in mobilization. And finally, the President created the National Advisory Board on Mobilization Policy to bring together people with outstanding experience and ability to help guide the Government's defense mobilization effort.⁴⁴

Hence a comprehensive structure was established throughout the executive department to manage the mobilization process; moreover, the program had visibility at the highest levels of government. Mobilization became a goal not just for the defense establishment, but for all the executive agencies that had a supporting role, such as Commerce and Interior. Perhaps most important was

History of Korean War Era

the rank accorded the Director of Defense Mobilization, who participated in the deliberations of both the Cabinet and the National Security Council.

Government Support of Expansion

Under the Defense Production Act, the Government set out to stimulate expansion of capacity by a broad variety of incentives and assistance, with primary emphasis on expansion of private capacity. The goals were to minimize outlays of Federal funds and to restrict incentives to cases within the scope of defense mobilization; the latter task was found to be difficult. The following paragraphs describe the main programs used.

1. *Accelerated Tax Amortization Program.* The Revenue Act of 1950, approved 23 September 1950, added Section 124A to the Internal Revenue Code, which authorized the amortization of emergency facilities over a 5-year period for tax purposes, substantially as had been the case in World War II. The Chairman of the National Security Resources Board (NSRB) became the certifying authority for amortization of emergency facilities. An organization was created to make the necessary determination and to issue "certificates of necessity" that would allow accelerated amortization. This organization and function were later transferred to the Defense Production Authority created after President Truman's declaration of emergency on 16 December 1950.⁴⁵

The Defense Production Authority was flooded with applications. By August 1951, 13,900 applications had been received, of which 3,328 had been approved for a writeoff value of \$6.3 billion. Because of the large number of applications and the difficulty of ascertaining the extent of defense relatedness, a 60-day moratorium was declared in late 1951. Priorities were established for future processing, with machine tools and plant equipment at the top, followed by ores, pig iron, sulfur, military end items, aluminum, and so on.

Starting in 1952, criteria for approval were established by initiation of expansion goals for various segments of industry against which all future proposals were reviewed. From the inception of the program to 30 June 1958, 229 goals were established. Approvals of rapid writeoff peaked in 1952 and fluctuated thereafter in reaction to limitations and incentives imposed by amendments to the De-

History of Korean War Era

fense Production Act and by changes of emphasis by the Office of Defense Mobilization. A total of \$23.1 billion in rapid amortization was approved for the 229 goals established.

In 1957, as a result of extensive hearings by Congress, the program was restricted to facilities for the production of defense items or research and development for DOD and the Atomic Energy Commission. The hearings had resulted from competition between two industries, one of which wanted to expand by government loan and the other by rapid tax amortization. Congress resolved the controversy about the cost to the Government through the restricting amendment to Internal Revenue Code on 22 August 1957, and the amortization program expired altogether on 31 December 1959.⁴⁶

2. *Guaranteed markets at guaranteed prices.* Commitments were made for Government purchase of output when a project involved an abnormal risk or when an assured market was required to induce either investment or production. In some cases, the commitments consisted of contracts to buy the output of a particular project, if it was not otherwise sold at a negotiated, sometimes premium, price. This approach was used particularly in the expansion of mineral production, which had the effect of lowering the strategic stockpile requirements while making material available for the stockpile.

3. *Direct loans and guarantees of commercial loans by the Government.* If private financing was unavailable for an expansion project because of the business risk involved, the Government made direct loans for investment in facilities or working capital or guaranteed the loans through banking channels. As of January 1953, more than 225 direct Government loans had been made, for a value exceeding \$300 million. The value of commercial loans guaranteed exceeded \$2.1 billion.

4. *Financing of plant construction and equipment through military contract.* The initial costs of equipping, and, in some cases, of erecting, facilities to produce under military contracts were often covered in the contract price for specialized military equipment. This approach is still used today.

5. *Installation of Government-owned equipment and construction of Government-owned facilities.* Production equipment owned by the Government was installed in contractors' plants when the contractor was unwilling or unable to bear the cost. In a few cases

History of Korean War Era

such as atomic energy plants and facilities housing heavy presses, Government-owned plants were built.

6. *Grants for research, exploration, and development.* Grants for research, ranging from a few thousand to several hundred thousand dollars, were made to stimulate development of new methods leading to greater output or conservation of scarce materials. The Government shared the costs of selected exploration and development projects.

Combinations of methods were used to secure major expansion. For example, to obtain development of new domestic copper deposits, the Government underwrote contracts guaranteeing to buy the entire output, if required, for a period of years at a floor price; rapid tax amortization also was approved covering about 75 percent of the cost of the facilities, and loans of several million dollars were granted.⁴⁷

Expansion of Military Production

As was indicated earlier, the expansion of military production had several facets. Clearly the first priority was the buildup of military production to support the Korean War. The more important, long-term goal was to build adequate war reserves and production base to fight a full-scale war with the USSR.

The first full year of the buildup, 1951, was largely a year of tooling up and getting ready for the full-scale production of war materiel. Funds were no problem, as Congress voted supplemental appropriations for fiscal year 1951 that made \$52 billion available for military and related purpose. Goals were set to expand production capacity to build 50,000 airplanes and 35,000 tanks a year and 18,000 jet engines a month.⁴⁸

The tooling-up process was affected by the concurrent needs to build capacity and to wait for the design and development of new items. Early in 1951 planners encountered a bottleneck in capacity caused by a shortage of engineers, designers, and draftsmen — people who knew how to equip and tool plants for manufacturing defense products on a quantity production basis. The problem was not numbers, in an absolute sense, but location of workers. Another bottleneck was the limited output of machine tools and other production equipment,⁴⁹ an issue that this report addresses later.

As the productive capacity was built up, decisionmakers faced the issue of whether to build items with available designs, to freeze the design process on new items, or to wait for new and superior items that were promised from research and development. Also associated with the issue of waiting for new models was the question of to what extent the armed services should insist on highest-quality performance. Quantity production could be speeded up, of course, by simply compromising on specification, that is, by accepting weapons that fell short of ideal performance, as was commonly done in World War II. Related to the issue of waiting for new models of higher performance was the problem of long lead time encountered in the new complex aircraft models. During World War II, the airframe had been the item with the longest lead time, but in the 1950s, the lead time of the electronic equipment was so long that, in some cases, production was started on those components before the airplane's design was finished.⁵⁰

At least one observer argued that quality ("How good") must match production ("How much"). In a lecture to the Naval War College on Economic Mobilization and the Navy, Captain John A. Hayes, a faculty member of the Industrial College of the Armed Forces, suggested that we did not need perfection, rigid specifications and continual changes that went with the pursuit of perfection.⁵¹ Subsequent history suggests that not many people listened.

The second year, 1952, was a year of accelerated buildup, with \$94 billion available for military procurement. By July 1952, aircraft were being produced at a rate exceeding 800 a month, more than three times the level of 1950 and about two-thirds of the peak rates planned in 1953 and 1954. Deliveries of all types of military hardware were growing. More than a 100 shipyards were at work on the naval rearmament program, with 19 combat vessels launched in the 9 months preceding July 1952.⁵²

By January 1953, production of all military planes reached almost 1,000 per month, with many new types, such as B-52, F-100, and F-3 scheduled for production in the near term. Guided missiles, which had received increased impetus in October 1950 through the appointment of a DOD Director, had not yet achieved assembly line production rates. Artillery guns were being produced at increasing rates, giving the reorganized division a 75 percent increase in firepower over World War II divisions. The keel for the first atomic-powered submarine had been laid during 1952, and the extensive

History of Korean War Era

naval rearmament program was in full swing. As for Army items, designs had been perfected, production facilities largely equipped, and high rates of output achieved. Progress was so remarkable that the question by January 1953 was how fast should the programs be run out? The issue was whether to have greater immediate strength at the expense of a cold base or to keep a greater number of production lines in operation and retain a state of readiness for rapid expansion to all-out production rates. To achieve the latter, a great many programs were to be stretched out, with those for tanks and wheeled vehicles being prime examples.⁵³

By 1953, then, Henry H. Fowler, the Director of Defense Mobilization had identified four major mobilization jobs remaining to be done. The first was to complete the equipping of the expanded force and to put adequate stocks into war reserves. The second was to maintain the momentum in military research and development and continuously apply the results of that research to new weapons. The superiority of our weapons was perceived to have offset the advantage of size that the Soviet forces had. Heavy emphasis was placed on the need for constant and intensive research along the frontiers of the physical sciences and for translation of that research into practical, producible weapons. It was explicitly recognized that, as the new weapons were developed, a balance must be maintained between sustained qualitative superiority and volume production, because falling far behind in either could spell destruction.

The third task was to systematically complete and maintain the mobilization base. The fourth was to join with allies, particularly NATO, in working out a satisfactory long-range basis for a common defense production effort.⁵⁴ Regarding this last task, a new proposal was made to help the growth of a healthy European defense community by shifting our NATO military aid dollars from direct shipment of arms to offshore procurement of arms in Europe. The effect would be threefold: to provide arms to NATO, to develop and integrate a West European defense industrial base, and to bridge the dollar gap in Europe, thereby strengthening European economies.⁵⁵

Economic Expansion

Another major goal of mobilization in the Korean War era was to expand the basic economy and industrial capacity to permit defense expenditures and the gross national production to grow concurrently, thus improving the standard of living in the country. The purpose of the goal was twofold: to make a significant increase in defense spending acceptable to the American people and to provide a powerful industrial base to support an all-out war of indeterminate scope and duration.

Basic Industry

Given the goal of economic expansion, the immediate question was, what kind of capacity should be expanded? The decision was made to focus on the basic industries—steel, aluminum, petroleum, chemical, electric power, and certain vital nonferrous minerals. There were good reasons for this decision. First, the technology of modern warfare requires vast amounts of these materials, beyond the normal needs of a civilian economy. In the absence of increased capacity in these areas, serious curtailments would have to be made of consumer durables, nonmilitary construction, and plant machinery. In an extended struggle, the Nation could not afford to live off its capital.

Second, the expansion of basic capacity adds flexibility to the economy and allows the later expansion of specialized capacity. The remarkable flexibility of the American economy in World War II was attributable partly to the fact that many industrial processes are essentially assembling operations that can be readily converted to the assembly of military items with similar characteristics. The inherent flexibility in many manufacturing operations provides an initial production capability that would not be usable without a large supply of raw materials readily producible from "basic" industries.⁵⁶

Expansion goals were set for basic commodities such as steel, aluminum, electric power, petroleum refining, titanium, and chemicals, to name a few. Schedules for expansion were consistent with the 1953-54 goals of NSC-68. Steel capacity stood at 100 million tons annually in 1950; a goal of 120 million ingot tons was to be achieved by 1954. Aluminum capacity was to be doubled, from 750,000 tons per year in 1950 to 1.5 million tons by mid-1954; this goal was later expanded to 1.7 million tons. Electric power

History of Korean War Era

generating capacity stood at 64 million kilowatts in 1950 and had a goal of 116 million kilowatts by 1955. Titanium was to be increased by 800 percent between 1951 and 1953. Within the chemical industry, a wide range of chemicals were to be expanded for use in fertilizers and other agricultural chemicals, explosives, and various synthetics.⁵⁷

Mining and Related Industries

Concern about critical raw materials had first been addressed in stockpile legislation in 1939 and later in the Strategic and Critical Materials Stockpiling Act of 1946. In recognition of the hazards of relying on distant overseas sources for critical raw materials, the Defense Production Act specifically provided for the "exploration, development and mining of critical and strategic minerals and metals." Expansion goals were set for chromium, copper, manganese, and sulfur as well as for minerals essential in high-temperature alloy steel. Nickel, tungsten, molybdenum, and cobalt became increasingly important as military technology moved toward higher speeds and operating temperature that could be met by heat-resistant steel alloys using these minerals.

By 1953, notwithstanding the long lead time usually required for exploration and development projects, more than 425 exploration contracts had been executed and new domestic sources of uranium, tungsten, beryllium, copper, and manganese were developed.⁵⁸

The various expansion goals covered both the basic mining of minerals and the creation of processing facilities to convert ores into usable raw materials. For example, a Government loan financed a \$94 million facility to process copper and molybdenum from Arizona ores; a mill and smelter were installed and a town site, power plant, and rail connections were constructed. A copper mine in Michigan was rehabilitated. A new plant to process low-grade manganese ores in Minnesota was to begin in 1954. Germanium capacity was doubled because of its use in electronics.⁵⁹

The purpose of the program to increase domestic mining and processing was to lower the dependence on foreign sources which are at the ends of long lines of communication that would be subject to disruption during a war. Programs to guarantee purchases of domestic ores had two effects on the stockpile: increases in do-

mestic capacity reduced the requirement for imports of the material in question, and material purchased from domestic sources could be put into the stockpile to fill out the goals.

Throughout the 1950s, national stockpile goals changed, often in reaction to domestic market conditions. In June 1958, the basis for stockpiling was changed from the assumption of a 5-year general war to a 3-year limited war (defined as nonnuclear) with a rapid mobilization period. Using the new objectives, the stockpile-grade inventory on hand in 1958 represented 95 percent of the basic objective. Controversy arose over the existence of relatively large stocks of material over and above the objectives. Much of the excess material was not of stockpile grade and had been acquired under purchase guarantees and laws such as Public Law 480 dealing with bartering of agricultural surpluses. After study, it was concluded that usable metals and minerals should be retained for future use, particularly given the uncertainty of future growth of requirements for high-temperature alloy materials such as cobalt.⁶⁰

Other Expansion

The overall Government program was extremely broad. To appreciate the scope of the effort, a few examples of projects that are not covered in the other areas are offered.

To help expand petroleum refining, the Platte Pipe Line received tax amortization assistance; this pipeline ran from Wyoming to Illinois and carried crude oil 1,000 miles. An 800-mile pipeline carrying natural gas from Mississippi to western Pennsylvania was built.

A dramatic step in building the mobilization base was the construction of heavy forging and extrusion presses principally for the purpose of making airframe sections. The manufacturing technology had been developed in Germany and Japan before and during World War II, but was not used in the United States until after the war. Congress authorized funds for 20 heavy presses, ranging from 8,000 to 50,000 tons of pressure capacity. These presses revolutionized the way we made structural parts for aircraft and other weapons.⁶¹

Other items with identified expansion goals were freight cars and diesel locomotives, oceangoing tankers, inland waterway ves-

History of Korean War Era

sels, Great Lakes ore carriers, and many others reaching into most aspects of the economy.⁶²

Machine Tools

A major bottleneck in World War II and in the early stages of the Korean War era mobilization was the availability of machine tools and other production equipment. After World War II, because of a shortage of new orders partially brought on by the Government sale of surplus machine tools, there was a decline in capacity as firms left the business. From mid-1945 to 1950, new orders were at a very low level, less than 15 percent of the peak reached in early 1942. In 1950, in response to the need for new machine tools to support the mobilization effort, new orders spurted to a level six times that of a year earlier. Because machine tools are essential to any industrial tool expansion, the machine tool industry received assistance equal to that of the arms program itself. With minor exceptions, shipment of tools to users outside the defense industry was banned. The Department of Labor organized a comprehensive program to assist the industry in obtaining manpower. The Department of Defense avoided calling up machine tool workers who were reservists, and Selective Service gave similar protection from the draft.⁶³

In addition, the machine tool industry was encouraged to expand by a number of programs devoted solely to the industry. These programs are summarized in the following paragraphs:

1. *Korean Pool Order Program.* Under this program, the Government ordered about 87,000 general purpose tools valued at approximately \$1.2 billion and guaranteed that the Government would purchase under a specified formula if private buyers were not forthcoming. As of 30 June 1958, all but 400 tools of the original order had been sold to industry.

2. *Toolbuilders' Facilities Expansion Program.* Under this program the Government purchased and leased 2,375 tools, valued at \$31.3 million, to toolbuilders to enlarge their capacity to build other tools.

3. *Elephant Tool Program.* The Government under this program financed the production of large-size, long-leadtime tools required in the production of other large, general purpose machine tools. The tools cost about \$5 million and, as of 30 June 1958, the Government had realized \$2.2 million in rental fees.

4. *M-Day Pool Order Program.* This program, which is still in existence, is designed to furnish tool builders with mobilization requirements for general purpose tools that would be "triggered" automatically in the event of an emergency. Now called the trigger program, the contracts guarantee purchase by the Government if tool builders cannot sell the tools manufactured under the program.⁶⁴

The ultimate objectives of all this effort were (1) to have on hand the long-lead-time machine tools certain to be needed in the event of war; and (2) to keep a high degree of the machine toolmaking capacity ready to meet the additional needs of a full mobilization. By October 1952, as defense orders were filled and demand slackened, the second objective became more immediately important. To restore longer-term prospects to the industry, the ban on shipments to civilian industry was lifted in July 1952. An Advisory Committee on Production Equipment was established to address policy issues of how to assure the availability of machine tools and production equipment to meet defense production requirements and how to maintain adequate capacity to meet mobilization requirements.⁶⁵

From the recommendations of the Committee, chaired by Harold Vance, former president of Studebaker, came the Tool Replacement and Modernization Program. The Committee recommended that the Government purchase long-lead-time machine tools for mobilization purposes and that such tools should be placed in a reserve inventory. The recommendation was based on the proposition that the defense effort would be better served by stockpiling productive capacity than by stockpiling individual items.

The Department of Defense concurred and, in the context of the need to support machine tool capacity, asked Congress for funds for FY 1954. Congress appropriated \$250 million, but none of the funds were used. When Congress extended an authorization of \$100 million to FY 1955, the Army and Navy combined used only \$15.4 million. The Air Force returned the entire remaining amount,

History of Korean War Era

\$84.6 million, because it changed its readiness program from "buy and store" to "buy and use."

Because the funds had not been used, the program was revised in 1956. Instead of a program that did not provide for current use of the tools, a new policy was set for each department to budget, through normal channels, for tools required for mobilization reserves and replacement purposes. The limit was set at 2 percent to 5 percent annually, which would have resulted in an annual program of from \$60 to \$150 million for the three services. The Air Force and the Navy asked for funds beginning in 1958 but the Army declined, on the basis that there were other programs of higher priority.⁶⁶ The 5 percent guidance for machine tool and production equipment survived in DOD guidance, but was never fully funded by the Army or the other services.

Mobilization Base Concept

Implicit in the original Korean War era mobilization objectives and explicit in the quarterly reports from the Director of Defense Mobilization to the President, starting with the fifth quarterly report of 1 April 1952, is the goal of building a mobilization base that would allow the United States to move rapidly into an all-out mobilization production rate. The mobilization base concept was the approach by which the United States addressed a new situation in the world, a national security need for military readiness to offset the constant threat from the USSR. The mobilization base was defined by Defense Mobilization Order No. 23, issued by the Director of Defense Mobilization on 23 November 1952:

The mobilization base is that capacity available to permit rapid expansion of production, sufficient to meet military, war-supporting, essential civilian, and export requirements in event of a full-scale war. It includes such elements as essential services, food, raw materials, facilities, production equipment, organization and manpower.⁶⁷

This definition focuses on the relationship between the mobilization base and the power of the Nation in a full-scale war. The Nation's ability to wage war is directly related to the strength, character, and flexibility of our mobilization base. The time element is critical. In World War II, too much of the effort of building to full production was required to build the production base. A similar lesson was learned in the months after the Korean invasion, when the

buildup again was relatively slow, as new weapons were designed and facilities constructed.

Another implication of the definition is the need for organization of resources at full mobilization, that is, the need to have planned adequately before the conflict. Finally, maintenance of the mobilization base, once it is established, is as essential as creation of the base.⁶⁸

Implicit in the mobilization base concept was the idea of conversion of industrial capacity from commercial production to military production. This general scheme of conversion of commercial capacity was a central feature of industrial mobilization dating back to the plant allocation approach contained in Annex 47 of the 1947 Industrial Mobilization Plan, discussed earlier.

The Vance Committee

The Advisory Committee on Production Equipment established to examine issues of the machine tool industry, which became known as the Vance Committee, made a broad policy recommendation in its 12 January 1953 report to the Director of Defense Mobilization that represented both a logical extension of the overall mobilization base concept and a focus on the military equipment subset of that concept. The Committee recommended that the Government should "substitute, to the greatest extent practicable, production capacity for the stockpiling of military end items," recognizing that there had to be a balance between production capacity and stockpiling. As the Committee's interim report of 12 September 1952 had stated, "If an adequate defense position has to be maintained over an extended period of time, as now seems to be the case, and if this is to be done without prohibitive cost, a larger productive capacity to produce military end items must be created and thereafter must be maintained in such a condition that it can be quickly expanded in the event of an emergency by merely adding manpower and hours of operation."⁶⁹

This policy pronouncement was consistent with the views of the DOD at the time and with the original mobilization objective. According to a letter from Defense Secretary Robert A. Lovett to the Director of Defense Mobilization, the DOD had been focusing on acquiring machine tools for current production needs; acquisition of machine tools for mobilization had secondary priority. The report of

History of Korean War Era

the Vance Committee was important from several perspectives, however. First, it articulated the basic planning and programing policy that became the foundation of DOD industrial mobilization planning until the 1970s. Second, the report provided a mobilization rationale and identified some problems that are as important today as they were in 1953. Third, and in a less positive vein, it put the establishment on a path of logic that made the general concept of conversion of private industry somewhat less tenable. Although the Vance Committee proposal did not preclude dual-capability plants that could swing from commercial to military production and back, the proposal suggests dedicated facilities for military production, and thus tended to isolate military production from the commercial sector.

A key factor in mobilization, the Vance Committee noted, is time. The time it takes the Nation to get to mobilization production rates must be offset by war reserve stockpiles. The less time required, the smaller the necessary war reserve stockpile can be. Acquisition of production facilities and specialized production equipment at M-Day and getting them to volume production will take time, perhaps years.

Another factor the Committee considered is the inevitability of obsolescence of military equipment. Military equipment will become obsolete at a much faster rate than the facilities required to build the equipment. Improvements in weapon design do not affect production facilities to the same degree that they affect the war reserve. Once mobilization occurs production facilities can produce the most current item, providing an optimal military structure.

The final factor the Committee considered is cost. The original cost of facilities is small compared with the cost of producing the end items on a large scale. In a situation requiring long-term readiness for war, the creation and maintenance of ample production capacity is not only less costly and more practical than depending chiefly on reserves of military material, it also represents a greater contribution to national security.⁷⁰

To make its new policy effective, the Vance Committee suggested that the following actions would have to be accomplished:

Realistic Mobilization Requirements. The Vance Committee found that the statement of requirements for full mobilization went beyond the material, manpower, and productive capability of the nation, both for production capacity and end-item reserves. Given

History of Korean War Era

this situation, no detailed recommendations could be made as to how much extra production capacity should be provided until both civilian and military agencies calculate and keep up to date phased mobilization requirements that are within national capabilities.

This finding was an echo of problems of mobilization planning in the period between World War I and II, when the quality of the basic requirements proved to be significantly understated once mobilization for World War II had started. The Vance Committee noted a different side of an old problem, that is, a situation in which the military requirements were perceived to be too high. The basic problem of requirements continues today, not in the context of being too high for national capability but so low that they do not approach the national capability at all, thereby significantly constraining our view of what can be done in a mobilization environment.

New Production Capacity. Once the phased end-item requirements for mobilization have been established, the required production capacity should be created. The ideal situation at the beginning of a mobilization period would be to have production facilities in being and ready to be activated quickly, plus enough reserves of end-items to meet all needs until full production could be reached. An example of possible savings was striking in its impact: It was estimated that if \$500 million were spent to purchase long-lead-time items of equipment for aircraft production that were put in place prior to M-Day, mobilization production capability would be increased by about \$18 billion over the first 2 years. The savings in mobilization or war reserves would have been in the ratio of 36 to 1⁷²

Keeping Capacity Up to Date. Any production capacity, once created, should be kept up to date so it can be activated quickly for an emergency. The Vance Committee stated that the Nation must not permit recurrence of the mistakes made after World War I and II of letting its industrial machine deteriorate or be liquidated. The annual cost of maintaining production capacity in the form of standby plants or reserves of production equipment is a small fraction of the original cost and an even smaller fraction of the cost of building up and maintaining war reserves. The fact that the Nation realizes today the mistake it has twice made, does not insure that it will not again fall into the same error or into an error even more disastrous."⁷³

History of Korean War Era

New Budget Procedures Needed. At the time of the Vance Committee report in early 1953, the budgets of DOD and the armed services provided for the acquisition of adequate military reserves to meet requirements for the first year of a conflict. The procedure did not take into account the true mobilization reserve requirement, that is, the quantity required to last until the production base could provide the monthly consumption levels. The Committee endorsed the establishment of budget procedures to indicate (1) the actual gap between mobilization requirements and mobilization production capabilities, and (2) the extent to which it is proposed to fill this gap by expanding and maintaining production capacity and by accumulating end-item reserves.⁷⁴

In effect, the Vance Committee was proposing what became known as the "D to P" concept, which provided for the acquisition of a war reserve stockpile, to be on hand at the start of a war (D-Day), adequate to satisfy consumption requirements until the industrial base could build production to the level of the consumption requirement (P-Day). The D to P concept was the basis by which the services budgeted for end-items and production base facilities until the mid-1970s, when DOD returned to a guidance similar to that which the Vance Committee decried as being totally inadequate.

Support of Production Equipment Industry. A healthy production equipment industry is a key factor in the Nation's ability to maintain a healthy economy and an adequate mobilization base. Normal commercial business would not be adequate to maintain the machine tool industry at the levels attained after the Korean War. An annual Government expenditure of about \$300 million, coupled with the expected commercial business of \$300 million per year would, it was believed, provide an adequate level of capacity to produce tools for defense in the future.⁷⁵ As was noted earlier, the Tool Replacement and Modernization Program was developed within DOD but was not followed through to the levels proposed by the Committee. Replacement of plant equipment did become part of the normal budget process, but in the context of replacing worn-out equipment used for current production, rather than protecting a basic machine tool industrial base. As might have been expected, a great deal of the production equipment acquired in the 1950s has never been replaced.

Government Facilities Needed. The Committee noted that certain types of large, heavy production, including basic heavy forging and

casting capacity, might not be created and maintained by private industry if they were commercially nonsupportable. In those instances where private industry would not make the investment, the Committee proposed that the Government do so. Of particular concern was the so-called "elephant" category of heavy forging and casting capacity, as well as heavy armor casting capacity for Army tanks. Again, the central issue was lead time for establishing capacity, lead time that would be disastrous if facilities were not available at mobilization. If incentives, including 100 percent tax amortization were not effective, the Government should accept the responsibility as one of the costs of defense preparedness.⁷⁶ As discussed earlier, the Government did in fact fund the "elephant" equipment, but heavy forging capacity is one of the key current bottlenecks to any acceleration of military hardware production, particularly aircraft. Also, the lack of adequate casting capacity for hulls and turrets was the critical limitation to expanding tank production after the Yom Kippur War of 1973.

Modernizing All Industry. Another recommendation of the Committee that is still applicable, was that an important objective of Government policy should be the maintenance of up-to-date, modernized industrial production facilities. The general efficiency of production (productivity) has a vital bearing on the amount of capacity normally devoted to civilian needs that could be converted to military production at mobilization. The Committee recognized that the form and possible effects of the proposal were controversial, but it recommended continuing study of the ways and means of attaining a healthy industry.⁷⁷ This insight was striking, given the present condition of the national industrial base and the current calls for "reindustrialization."

In summary, the initial goal of creating production capacity over and above that needed to support the Korean War and a 1-year war reserve for a full-scale war evolved into the mobilization base concept. In its broadest context, the mobilization base concept covered the entire economy and its capability to provide production to meet not only military but also essential civilian and export requirements in the event of a full-scale war. In addition, the acceptance of the Vance Committee recommendations led to the concept of a military mobilization base. It is this author's opinion that the seeds of the ultimate deterioration of mobilization planning and capability were planted by the concept of a dedicated military

History of Korean War Era

mobilization base that was a natural outgrowth of the Committee's policy recommendations.

Maintenance of the Mobilization Base

The next challenge to planners stemmed from the success of the effort—the fact that the USSR was dissuaded from initiating a war. The predicted 1953 M-Day did not occur, and military planners were aware that they had passed through the first of the three phases of a normal production sequence uninterrupted by an emergency. These phases of production are as follows:

1. *Buildup of the Production Base Phase.* Production is scheduled to produce immediate stockage requirements by a set time, ideally by the assumed M-Day. In the Korean War era, the buildup was accomplished on a single-shift basis, thereby leaving a reserve potential capacity of two additional shifts if immediate expansion were required.

2. *Stretch-out of Production Phase.* As the assumption regarding M-Day is pushed back in time, it is necessary to stretch out production to facilitate maintenance of the production base.

3. *Cut-back and Retrenchment of Production Base Phase.* When cost becomes prohibitive in light of security factors (or budget constraints) and it becomes uneconomical to maintain the production base, retrenchment or full termination becomes necessary.⁷⁸

By 1953, production of items such as Army tanks and wheeled vehicles were being stretched out. Many items were in the second phase and decisionmakers had to decide what to do about the inevitable third phase (cutback) on individual items. The point here is that this problem of what to do after cutback or termination has confronted decisionmakers ever since new weapon systems began to be phased into the system in the 1950s. The issue becomes what is done after the cutback or termination.

In 1953, maintenance of industrial capacity was recognized as an indispensable adjunct of the creation and expansion of a mobilization base. The value of a mobilization base for wartime production depends on finding means of insuring continued availability of essential facilities for prompt reactivation or reconversion for military production at a later time. About \$5.7 billion had been made

available to the services for facility expansion, and some \$25 billion in tax amortization certificates had been issued to promote private expansion.

Not until that time, however, had the problem of maintaining that enormously enhanced capacity begun to take shape. There had been wide acceptance of the principle that the greatest amount of security could be obtained at the least cost by the creation of rapidly expandable industrial capacity in lieu of stockpiling larger reserves of aircraft, ammunition, and other end-items. Little attention had been given, however, to the corollary of that proposition—that the production capacity had to be maintained in a condition of readiness to provide a long-term usefulness for the future.

The facilities for which a maintenance solution had to be found fell into three general categories: (1) Government-owned plants and equipment, (2) Government-owned equipment in privately owned plants, and (3) privately owned plants (both those in which Government equipment has been installed and those in which the equipment is all privately owned).

Government-owned plants fell into two subcategories, (1) those held by the military departments (263) and (2) those held in the National Industrial Reserve by the General Services Administration (175). The main difference between the two kinds of plants was that the former usually concentrated on production of military end-items and major components, whereas the latter usually produced basic materials such as aluminum and magnesium. The solution to all these plants was simple, given adequate funds; the plants could simply be put into a laid-away condition and retained for future emergencies.

As for the other two categories, \$2.4 billion of the \$5.7 billion that had been appropriated to the military departments for facilities expansion had been used for installation of Government-owned equipment in private plants. In addition to this equipment, machine tools worth \$85 million had been installed in toolmakers' plants under Title III of the Defense Production Act. On 17 January 1953, the Director of Defense Mobilization (through Defense Mobilization Order DMO 24) directed the DOD, General Services Administration, and others to provide for adequate maintenance of this Government-owned equipment.

History of Korean War Era

Privately owned plants presented a harder problem in that there was not legislative authority allowing maintenance of the facilities for emergency military production. It was believed that because many of the facilities would retain their basic capability for defense production as a consequence of their essential character, no Government action would be necessary. It was recognized that other private plants would be lost because they would not have a profitable use for other than military production. DMO 24 did not, therefore, solve this problem directly but required the development of a solution.⁷⁹

One suggestion was to compensate private contractors for retaining military production facilities through tax benefits. Advantages of this approach would have been a greatly reduced direct cost to the Government and the circumvention of the problem and vagaries of annual appropriations.⁸⁰

Defense Mobilization Order VII-7, dated 25 August 1954, superseded DMO 24 and provided the policy resolution of what to do about maintaining the total mobilization base. The order declared that it was essential that the facilities, machine tools, production equipment, and skilled workers required to meet minimum wartime mobilization requirements for the Department of Defense, Atomic Energy Commission, and the Maritime Administration be maintained in a manner which would allow their prompt use or *conversion* in time of emergency. DOD was required to determine those facilities that produced or were capable of producing critical military items or components that met certain criteria relating to how readily the material would be available at mobilization. Selected facilities were to be maintained to the fullest extent possible. To achieve this goal, the order required that procurement agencies integrate current production with their industrial mobilization plans to the greatest possible extent with the objective of supporting the mobilization base within available funds and authority. Mobilization data gathered on essential mobilization suppliers were to be used in planning current procurement, and these suppliers were to be invited to participate in current procurement. The DOD implementing document, DOD Directive 3005.3, dated 7 December 1954, provided that rapid delivery and low cost were not the overriding criteria in placing contracts for critical items, and authorized payment of higher-than-low-bid price whenever national security would benefit proportionately.

Upon expiration of procurement contracts in a facility, the procuring agency was to take the following actions:

1. *Government-owned Facilities and Tools.* Within the limitations of congressional appropriations, the sponsoring department or agency was to place Government-owned facilities and tools in a standby status and provide adequate maintenance.

2. *Privately-owned Facilities and Government-Owned Tools.*

a. Whenever possible, the sponsoring department or agency was to arrange with management of privately owned facilities to place Government-owned tools and production equipment in a "packaged form" (that is, a complete complement of production equipment and tools capable of producing a particular military item) and held them in an efficient operating condition at the plant. As an alternative, the equipment was to be removed to central storage but maintained as a package. This latter approach was clearly a second choice, given the experience with central storage after World War II. DMO VII-4, dated 9 October 1953, defined "package form."

b. Wherever possible, the sponsor was to arrange with management to keep a group of key managers, engineers, and skilled workers familiar with the items planned.

c. The sponsor was to determine any gaps in the packages, and plan to procure the necessary tools and equipment, with priority being given to long-lead-time items. When procured, the tools and equipment were to be placed into a maintenance status with the package, preferable at the plant.

d. Government-owned equipment and tools determined to be obsolete were to be disposed of.

DMO VII-7 also created a Defense Facilities Maintenance Board with members from DOD, the three services, the Department of Commerce, and the Atomic Energy Commission, under the chairmanship of the Office of Defense Mobilization. The board was to recommend policy to the Director of ODM, including additional methods and procedures for assuring the maintenance of both Government-owned and privately owned facilities essential to the mobilization base.⁸¹

To summarize, as the mobilization base matured and production schedules entered the stretch-out or cutback phase,

History of Korean War Era

decisionmakers had to decide how to maintain the capability of the mobilization base for a later conflict, beyond the original forecast of 1953 or 1954. The wholly Government-owned base was considered to be no problem from a policy standpoint; clearly we could maintain the facilities and equipment, providing the funds were available. The issue of Government-owned equipment in private plants was also resolvable within existing legislative authority, again given adequate funds. The issue of wholly privately-owned facilities, as can be derived from DMO VII-7, was never adequately resolved. Although ODM and DOD established the policy of directing procurements to the mobilization base producers as a means of preserving the base, this was only part of an answer. Once the procurements fell to the point that private production lines had to go cold, there was no identified mechanism to assure that the producer would be available at a later date. The proposal of providing tax relief for maintenance of military capability was apparently never effectively pursued.

Civil Defense: A Shift in Focus

The initial focus of the mobilization effort had to do with building up production and the production base for conventional and nuclear weapons while concurrently expanding the economy. In the early years, little attention was given to the concept of industrial dispersion to protect industry from atomic attack; private industry was simply encouraged to build any new plant at a site physically removed from other plants. Once the Soviet Union had acquired thermonuclear weapons and a capability to deliver them, war planning was forced to expand its scope to include assessments of damage resulting from nuclear attack, measures to reduce vulnerability and programs for survival, and relief and reconstruction of the society and economy in the attack and postattack periods. In late 1953, policymakers began to include these considerations while continuing with mobilization planning for a conventional war. In interviews with *Nation's Business* in May 1954, Director of Defense Mobilization Arthur S. Flemming talked of the need to plan for every eventuality—a cold war, a police action, an intercontinental duel, and an atomic holocaust. "Industrial defense," the protection of critical facilities to assure their continued production to the maximum extent possible after an atomic attack was identified as the

History of Korean War Era

top-priority task at ODM. A major part of this program was the dispersal of industry.⁸²

The focus on solving this new problem did not mean that planning for other types of conflict stopped. The National Plan for Civil Defense and Defense Mobilization, dated October 1958, listed these contingencies for which the Government was to make plans:

- International tension, but not of such extreme nature as to require the invocation of full emergency authorities.
- Limited war, defined as a situation in which United States forces are engaged overseas, but in which there is no immediate expectation of nuclear attack on the United States.
- General war, including massive nuclear attack.⁸³

This report does not discuss the civil defense planning that evolved over time. The primary reason for broaching the topic is that national planning for a nuclear attack indirectly affects planning for an industrial mobilization. Not only did ODM shift its efforts to the civil defense effort and all it entailed, but also a psychological shift over time eventually discredited the need for industrial mobilization planning, on the basis that a nuclear war would surely be a short war. Once planners start to focus on short wars, the prophecy becomes self-fulfilling—that is, if one can only fight a short war, it will surely go nuclear after the initial conventional short war.

On 23 November 1955, the Air Force adopted a new Production Readiness Policy, which had a more immediate impact and placed more emphasis on readiness for war involving an attack on the United States than on the traditional concept of a prolonged industrial buildup after a war starts. Two special planning concepts were outlined in the policy: the Production Acceleration Concept and the Production Compression Concept. These concepts were not intended to replace mobilization planning, but to be a supplement for selected items.⁸⁴ The implications of this modification of approach are discussed later in the Industrial Mobilization Planning section.

Summary of the Korean War Era

NSC-68 is the key to understanding defense and industrial mobilization in the 1950s. NSC-68 assessed the Soviets' aggressive posture and concluded that, if unchecked, the USSR would attempt

History of Korean War Era

to gain control over the Eurasian land mass. Such a situation would be unacceptable to the United States because it would isolate us against an enemy that had the entire economies of Europe and Asia to draw on for military power. Since the United States was (and is) the only free world power capable of blocking such an ambition, the Soviets could be expected to attempt to eliminate our countervailing power by whatever means available to them. The USSR was believed to have acquired an atomic capability in August 1949. Whether the Soviets had a thermonuclear capability was unknown, but it was assumed that they were attempting to acquire one. Furthermore, the USSR was expected to be able to mount an atomic attack on this country by 1954 and it was believed that an attack would be made unless the United States took action to create adequate defenses.

NSC-68 provided an intellectual rationale for the creation of a state of operational and mobilization readiness aimed at thwarting Soviet aggression of all types. Intrinsic to the mobilization readiness were balanced conventional and nuclear capabilities, the former essential to remove dependence on and preclude use of the latter. By developing a deterrence to the Soviets' ambition, we hoped to ultimately cause them to change their behavior.

The invasion of South Korea by a Soviet surrogate had the effect of a Pearl Harbor. It confirmed the ultimate Soviet intent to dominate the world. The NSC-68 plan of mobilizing the economy and building a military force and mobilization readiness to counter the Soviet threat was put into action. The Defense Production Act provided wide-ranging authority to accomplish mobilization within the context of an expanded economy. In December 1950 President Truman declared a national emergency and created the organizational structure to achieve a state of mobilization readiness, that is, to be prepared to mobilize the economy. The goals were those of NSC-68, which was based on the anticipation of a Soviet attack by 1954.

To assure that the effort would have highest priority, the Director of Defense Mobilization was made a member of the National Security Council and the Cabinet. The organizational structure covered the full spectrum of the executive departments, and the attainment of mobilization readiness was a clear-cut objective of every agency that had any role, however small. Congress was made a partner of the process, not only through the normal appro-

priation process but also through the creation of a Joint Congressional Committee on Defense Production, established by the Defense Production Act. The people also were made partners through a public information program. Beginning in April 1951, the Office of Defense Mobilization made quarterly reports to the President that were undoubtedly intended more for the public than the President.

The Defense Production Act provided for wage and price controls, credit controls, priorities and allocation, import controls, and expansion of production capacity. The Revenue Act of 1950 added Section 124A to the Internal Revenue Code, which provided for rapid amortization of emergency facilities for tax purposes. All the tools were provided to attain the national goals that were clearly enunciated in the quarterly reports. The goals went far beyond support of the Korean War, although that was the first priority. They also provided for the attainment of reserves for the first year of a full-scale war, for ourselves and our allies. The production facilities created were to be sized not for current production but for a full-scale war. To provide a broad economic foundation, our basic resources and industrial capacity were to be expanded to support a military program as large as necessary while allowing Americans to improve their standard of living. In effect, we were to create a condition of mobilization readiness.

Production facilities were created and military production goals were reached within the time set. Industry of all types was expanded, with particular emphasis on basic industry such as steel, aluminum, electricity, ore mining, and processing of critical minerals, and on the key foundation industry of machine tools. The United States attained a state of operational and mobilization readiness for both conventional and nuclear weapons, which had the effect of forcing the Soviets to modify their behavior—the ultimate goal of NSC-68.

The Korean War era, then, was unique in several respects. For the first time in our history we established the policy and the fact of readiness for war, both in terms of operational readiness and in terms of industrial readiness, during a period when no war had been declared. We expanded the economy with specific goals for basic industry and capability essential to military items. We recognized that the job was going to take a long time and we set up the processes to preserve the state of readiness through the mobilization base concept. The Korean War era was also unique in that it

History of Korean War Era

was the first time we had espoused the theme of "guns and butter" (and it was the only time that we have obtained a state of "guns and butter") through a firm policy of broad-based economic stabilization to control inflation during the expansion of "guns."

The mobilization of the Korea War era contrasts sharply with the buildup for Vietnam. As the Assistant Secretary of Defense for Installations and Logistics told the Mobilization Readiness Division of the American Ordnance Association in 1966, the United States met the needs of Vietnam without imposing the usual wartime controls. No mobilization was decreed, either partial or otherwise. No reserve forces were ordered to active duty. No significant restrictions were placed on the civilian economy. No economic controls over wages, prices, profits, or materials were imposed.⁸⁵ The long-term economic effects of that policy are with us today.

Chapter 4

INDUSTRIAL MOBILIZATION PLANNING IN THE YEARS BETWEEN KOREA AND VIETNAM

As we have seen, the mobilization base concept adopted by ODM and DOD included the "D to P" concept, that is, the substitution of industrial productive capacity for war reserve stockpiles to the maximum extent possible. ODM established a firm policy to maintain the mobilization base, which included using current procurements to enhance the privately owned industrial base to insure its availability at mobilization. In effect, the Government established a goal of mobilization readiness, and that goal was made a yardstick against which other goals, such as procurement, were measured. The goal, however, was established in a changing environment, when many items were entering the latter phases of their production cycle. When hostilities in Korea ceased, stocks on hand were deemed to be adequate for future needs short of full mobilization. Many production lines, particularly those for Army items, were going cold. The effectiveness of a policy of using procurements to retain producers in the mobilization base who might otherwise have switched to peacetime products was ultimately limited by the inadequacy of the procurements available.

DOD Industrial Mobilization Programs

In the early 1950s, the Department of Defense put out a series of directives and instructions which gave guidance to the services

Planning in the Years Between Korea and Vietnam

on how to conduct industrial mobilization planning. DOD considered the directives to be firm, binding, official orders.⁸⁶

The first important step in industrial mobilization planning is to determine requirements for supplies and equipment, including scheduling and location as well as type and quantity. The requirements were based on strategic plans that dictated force structure. To standardize the determination of requirements among the services, DOD issued DODI 4200.1, dated 4 April 1954, which provided detailed guidance on the use of the Materiel Planning Study. Among other things, the study contained quarterly mobilization consumption requirements for 48 months. It also provided for an identification of mobilization production capacity of specific plants to support the consumption requirements. The D to P concept was implicit in this comparison; procurement programs had to be structured to satisfy the war reserve requirement, which was the difference between consumption and production capacity.

Requirements

After requirements for end-items had been calculated and end-item plant capacity measured, the number of components and quantities of basic materials required were determined. In this area, DOD worked with ODM and the Business and Defense Service Administration of the Department of Commerce. A Components Study Program was established to insure sufficient production of items such as gears, valves, ball bearings, and optical instruments to meet both military and essential civilian needs. Through joint agency task groups, military and civilian planners determined component requirements and national capacity to produce. When planners found shortfalls in capacity, they sought solutions that might include the use of tax amortization certificates or Government-funded expansion. A similar procedure was followed for basic materials; working groups determined the requirements for steel, copper, cobalt, and the like and, again, solutions were examined.⁸⁷

Preferential Planning List

The Preferential Planning List (PPL) was the list of military items — sometimes referred to as the Thousand Items—essential to national survival. Because the time and money allotted for industrial mobilization planning were limited, the services were directed

Planning in the Years Between Korea and Vietnam

to identify key end-items for which detailed mobilization planning would be accomplished. The establishment of the PPL kept the number of items down to a manageable number. It also provided for planning in depth for major items. The services had to obtain approval from DOD to include items on the list.⁸⁸

Production Allocation Program

The Production Allocation Program made sure that every essential manufacturer of military items and equipment knew in advance of mobilization "what he is to produce," "for whom," and "how much." Concomitantly, the program also told the services the source for an item and avoided competition between the services for capacity at a single plant. (This program was clearly derived from Annex 47 of the Industrial Mobilization Plan.)

Under this program, manufacturers believed to be best suited to produce specific items were registered. The Armed Services Procurement Planning Officer (ASPPO) from the predominant service for whom the plant was to manufacture products and an Industrial Plant Representative (IPR) from the plant formed a military-industry team whose first function was to plan the best possible wartime use of the plant involved. They surveyed the plant, listed its facilities, stated its capabilities, and described its wartime potential. This information was made available to all the services, which could request schedules for production through the ASPPO. The result was practical and possible mobilization production schedules for military items.⁸⁹

Several other programs in the total industrial mobilization program were the Industrial Defense Program, Industry Preparedness Measures, and Priorities and Allocations Program, plus the Reserve Plants and Reserve Tools and Maintenance of the Mobilization Base programs that were discussed earlier.

The Industrial Defense Program provided for development of a list of critical facilities such as factories, bridges, and power stations necessary for the production of essential military items. The list, known as the Key Facilities List (KFL), became the basis for planning industrial defense against natural causes (fire, flood) or enemy action (bomb damage, sabotage). Each service was assigned responsibility for certain facilities on the KFL.

Planning in the Years Between Korea and Vietnam

The Industry Preparedness Measures program aimed to identify and eliminate mobilization and production bottlenecks prior to the emergency. The measures, generally contracts between a military service and a private firm, ran the gamut of industrial mobilization planning activities, from a study by a potential producer to identify problems requiring correction to the funding of a pilot production line to establish mass production methods.

The Priorities and Allocation Program, which was authorized by the Defense Production Act, was continued without interruption because such a system was expected to contribute substantially to the Nation's readiness to mobilize. The existence of the system at M-Day was expected to minimize costly delays in rapid conversion to military production.⁹⁶

Service Application of DOD Policy

The Army had no problem with the DOD guidance, since the mobilization base and D to P concepts closely matched the traditional role of the Army, that is, to fight extended conflicts of indeterminate duration. The Navy was also a believer in industrial mobilization, notwithstanding the fact the mobilization base concept had its primary application for other than capital ships. In fact, at a 1956 eastern regional military-management conference on industrial mobilization attended by representatives of nearly 300 companies, a Navy admiral gave an impressive talk on the innovative applications of DOD policy the Navy was actively pursuing. The companies in attendance ranged from small businesses to Fortune 500 companies like Goodyear, and industrial mobilization was a matter of high interest.

At the same conference, the Army and the Air Force explained their industrial mobilization programs. The Army essentially described the classic mobilization base concept, while the Air Force discussed its new Production Readiness Policy, which was to supplement DOD directed planning. The DOD expected the Air Force to continue with normal industrial planning for most of its aircraft, weapons, and supplies. At the center of the new Air Force approach were the Production Acceleration and Production Compression Concepts. The former was essentially advance procurement of long-lead-time material and semifinished components required for the planned production run. The initial production schedule was

Planning in the Years Between Korea and Vietnam

then scheduled on a single-shift, 40-hour week (1-8-5) so that the program could readily be accelerated to deliver the total buy quantity, that is the total quantity included in the basic program. Planners expected to reach predetermined production rates 7 or 8 months earlier than normal under previous planning. The Production Compression Concept was essentially to plan "surge production" for a limited number of strategic and air defense items, so as to be able to develop a capability for all-out production of completed aircraft during a 30-, 60-, or 90-day period. A basic premise of these concepts was that the United States would have been under nuclear attack.⁹¹

In 1955, the Air Force adopted the Force-in-Being concept, which was predicated on the assumption that the next war would be a total nuclear war fought with the weapons on hand at the start. The focus was on achieving a constant state of readiness and logistics in place, to provide a nuclear deterrent and massive retaliation. The Production Readiness Policy was at least somewhat consistent with this view (in fact, it was sold as such), but it was apparently deemphasized to the point of oblivion as well. At the same time that the Army was basing requirements in a long war of attrition, the Air Force was planning on a short war of nuclear bombardment. While the Army requirements called for stocking months of combat supplies, up to P-Day, the Air Force stock requirements were measured in days—and very few days at that.⁹² So, from 1958 until 1967, the Air Force conducted no industrial readiness planning with industry except the planning inherent in the procurement cycle. No plans were made for future production of essential materiel that would be required after M-Day.

Why was the Air Force defection significant? One reason is that it put forth very mixed signals to industry. At the same time the Army and Navy were trying to perform industrial mobilization planning with industry, the Air Force was saying that such planning was not important. Since effective industrial planning depends on the willingness of industry to participate and plan on a voluntary, nonreimbursed basis, any action that would tend to discredit a program to a large portion of industry would have a detrimental effect. We have already seen that ODM had switched its emphasis from conventional mobilization to preparations for a nuclear attack, believing that the former was under control.

Another reason the Air Force action was significant is that it was based on a viewpoint that had apparently acquired an ascend-

Planning in the Years Between Korea and Vietnam

ancy in DOD and elsewhere, that the next war would be a total nuclear war of short duration. A focus on this type of scenario would lead to different mobilization requirements for conventional munitions, if any, and would have a negative impact on funding for other than nuclear requirements. What is striking is that this philosophy, carried to the extreme that the Air Force carried it, ran completely contrary to the principles of NSC-68, which held that strong conventional forces were essential to avoid use of a nuclear capability.

In 1962, DOD announced a new policy of "flexible response," which basically established that the United States would be prepared for any degree of conflict, nuclear or conventional, on any scale and duration. This policy caused the Air Force to examine its stockpile policies, and, combined with new emphasis from DOD in the context of Vietnam experiences, led the Air Force to return to mobilization planning in 1967, but apparently only for spare parts, not entire aircraft. At this time, the focus was on limited war, which was defined as a conventional war fought outside the continental limits of the United States. In July 1966 the Office of Emergency Planning (OEP), a successor to ODM once removed, completed a Resource Mobilization Plan for Limited War. The plan provided for a variety of responses, including those of the Korean War mobilization such as wage and price stabilization and price controls.⁹³ Without exploring the planning evolution in detail here, it can be pointed out that the philosophy for war preparation had passed from emphasis on dual capability (conventional and nuclear) to nuclear and back, but with a flavor of something less than all-out conventional war. Limited war, however, could mean any nonnuclear conflict, regardless of scope and duration.

An indication of the climate was the change made in the charter of the Industrial College of the Armed Forces (ICAF) in February 1962. Instead of being a school expressly created for the study of industrial mobilization, the ICAF was to become "the capstone of our military educational system in the management of logistic resources for national security." To combat the multifaceted challenges to our national security the college was to change its focus to the management of programs, materiel, and personnel.⁹⁴

Chapter 5

VIETNAM WAR ERA

Joint Logistics Review Board

How effective was mobilization planning by the time of the Vietnam War? In 1970, the Joint Logistics Review Board made a comprehensive examination of logistical support in the Vietnam War era. The discussion in this section is derived from Monograph 12 of the Board's report.⁹⁵

Mobilization Requirements

The Board noted that the establishment and preservation of an adequate industrial base depend on realistic industrial mobilization requirements. "Without valid, stable requirements it is virtually impossible to plan with industry or maintain the production base in an acceptable state of readiness." Have you heard this before?

Some time after 1956, mobilization requirements fell to such an extent that retention of much of the industrial base built up during the Korean War mobilization could not be justified. Many of the plants and much of the equipment (80 percent in the Department of Navy) were eliminated because of the policy of getting rid of excess facilities based on faulty estimates of future requirements. An example of bad requirements estimation was the MK-80 series iron bombs for which the approved mobilization requirements were only one-tenth of the actual expenditures in Vietnam.

The problem stemmed largely from the use of DOD's annual Logistics Guidance to develop mobilization requirements. The an-

Vietnam War Era

nual guidance was used for programing current and out-years of the 5-year program and, over time, became constrained by the available funding. Affordability dictated the current guidance, and because current guidance dictated force structures and rates of usage, which were the bases for mobilization requirements, rates of usage became constrained by affordability as well.

Low mobilization rates were the result. Those rates, in turn, created havoc with the mobilization base because facilities required for the limited war in Vietnam were lost, either through being declared excess or from poor maintenance. Funds had to be spent to reestablish discarded bases for general purpose bombs and metal parts for the 155mm M-107 high-explosive shells.

Responsiveness of Industry

Mobilization planning, by definition, is based on a declaration of national emergency and the imposition of certain controls to enable prompt response by industry. For political reasons, a national emergency was never declared for Vietnam (although the 16 December 1950 declaration relating to the Korean War was still in effect).

The Joint Logistics Review Board noted that not only was a national emergency avoided, but also a decision was made to use competitive procurement to the maximum extent to reduce the costs of the war. This policy, in effect, invalidated all the planning agreements made with industry. Although ODM had declared a policy of using current procurements to maintain the mobilization base in the 1950s, the practice in the Vietnam War years was exactly the opposite. The effect was to place the war effort on equal footing with commercial work. If there was no urgency to industrial mobilization agreements, then military requirements must not be urgent. There was no incentive for private industry to shorten production lead times.

Industry was unwilling to give up firm commercial business, therefore many firms were reluctant to bid on Government work unless they had idle capacity. Producers who had been previously designated to do the work (planned producers) and who chose to bid were often not the winners because awards went to the lowest bidders. Frequently, Government equipment in the hands of a planned producer had to be removed and shipped to the low bidder,

Vietnam War Era

thereby destroying the validity of the mobilization base, particularly if the new producer turned out to be unsatisfactory.

OSD and the armed services also failed to use effectively the priorities and allocation system that had been retained in one form or another since 1950. Clearly, more responsiveness would have been obtained if the National Priorities and Defense Materials System had been more thoroughly used.

Other impediments to responsiveness were the condition and age of equipment in layaway. Notwithstanding the emphasis the Vance Committee had placed on the need for upgrading plant equipment, very little had been done in the period between the Korean and Vietnam conflicts, once the equipment had been laid away. Industrial preparedness measures to upgrade equipment packages had very low funding priority. Seldom was a preparedness measure approved strictly for mobilization purposes. Only the Navy was able to identify funds actually spent for industrial preparedness measures, and the amount was significantly less than the original request.

Industrial Capacity

Among its other objectives, industrial mobilization planning is supposed to identify potential capacity shortages for military requirements and to make proposals for corrective action. Notwithstanding the system of component studies required by DOD and continued by the Department of Commerce, there were several instances of inadequate national capacity. In 1969, there were only three important producers of miniature and instrument ball bearings in the country, of which two were in danger and the third had been taken over by a Japanese Manufacturer. In its 1970 report, the Joint Logistics Review Board predicted dependency on foreign factories for components of aircraft and missiles.

Meanwhile, the limited capacity for some items was filled with commercial business. The casting and forging industry was a seller's market. Lead times increased as Government orders were put at the end of waiting lines for many components. Engines, transmissions, and axles were all examples of items for which commercial business had largely absorbed the available capacity. The problem was exacerbated by competition between the services for available capacity—another example of not using a good system

Vietnam War Era

that was available. One of the founding principles of the plant allocation system was the elimination of competition for capacity at a specific plant.

Government Facilities

As of 1970, the Joint Logistics Review Board noted the DOD had custody of more than \$15 billion of Government-owned industrial property and plant equipment. However, over a period of time, DOD had followed a policy stipulating that the contractor should provide facilities necessary to the performance of a contract. DOD directives require that Government ownership of industrial facilities be minimized to insure economical support of essential defense production, and the Assistant Secretary of Defense (Installations and Logistics) and others strongly emphasized this policy in their public statements.

Notwithstanding the policy, the Board found that private contractors would not make the investments, because they were not interested in sporadic military production. They maintained that they could not afford to maintain idle facilities once procurements began to wind down. Strangely, some critics of Government-owned facilities insisted on the complete disposal of Government-owned facilities, in the belief that the production capability would be just as available to the DOD at mobilization under private ownership as under Government ownership. This theory was flawed, since in most cases any equipment sold by DOD was sold on a competitive basis with no assurance that it would be acquired by a planned mobilization producer.

The policy of selling Government-owned equipment was only partially successful. That failure understandably benefited the support for the Vietnam War, in that the reactivation of reserve facilities immensely simplified the expansion of production for helicopters, ammunition, and bombs.

Those facilities that were available, however, were in very poor condition as a result of the Government's failure to provide adequate maintenance funds and program emphasis. Despite the best intentions and foreknowledge of the consequences of failure to maintain facilities, the same mistakes that had been made after World War II were repeated after the mid-to-late 1950s, when the production lines were laid away again.

The manufacturing processes, particularly in the ammunition plants, were both antiquated and in poor condition. The situation discovered in 1965 was actually worse than that encountered in 1950. Nothing had been done to update the facilities, let alone maintain them. Millions had to be spent to bring plants back into production, and all but 2 of 24 ammunition plants were brought back for the Vietnam War.

The failures of the past were again recognized. The Joint Logistics Review Board estimated the cost to modernize the ammunition base at \$5 billion, shipbuilding at \$8 billion, heavy weapons facilities at \$2 billion, and the aerospace industry, \$3 billion. Of these requirements, only the modernization of the Army's ammunition base was actively pursued after 1970.

Planning With Industry

DOD policy is to rely on privately owned capacity to the maximum extent possible in peacetime and mobilization. DD form 1519 is used to formalize a nonbinding agreement between the Government and a private producer in which the company expresses its willingness and ability to produce specific military items in the quantities specified, while the Government expresses its intention to procure the items at mobilization. This document is the principal vehicle by which DOD relates wartime mobilization requirements to available production capacity. Information needs to be valid and current if the services are to properly balance private capacity with Government-owned facilities.

When the Joint Logistics Review Board requested industry to evaluate the form 1519 system, one respondent, the Machinery and Allied Products Institute, stated that to be involved in mobilization planning with the Government was only an exercise. The plans were obsolete; moreover, the yearly quantities specified could be produced in only a few days. Emergency planning schedules of the DD form 1519 series have involved hundreds if not thousands of nonproductive man-hours. The first option of any schedule had yet to be exercised. As the Institute noted, "Industrial Mobilization Planning needs major attention. Our nation's strength relates to our industrial capacity. Strategic planning must relate to this strength."

Industry was skeptical of the mobilization planning program because of the lack of potential for profit unless mobilization is or-

Vietnam War Era

dered. The services were encountering a reluctance by potential contractors to supply more detailed analysis involving increased cost without any return or anticipated return on their investment.

One problem the Board identified was that of support by the Armed Services Procurement Planning Office (ASPPO). The ASPPO used to work for the services but when the various procurement districts were consolidated into the Defense Contract Administration Services (DCAS) in 1965, the channels for dealing with industry passed to DCAS. The effectiveness of the program depends to a large degree upon the job done by the ASPPO. As of 1970, however, there was strong indication that DCAS was insufficiently staffed to provide the personnel required to make the contacts with industry, much less to make the in-depth analyses required. As of November 1969, there was a backlog of 2,500 schedules, and most DCAS region offices had not been able to initiate extensive subcontract planning. Overall very little effort was apparent at the ASPPO and contractor level in response to the voluntary planned producer program.

The Joint Logistics Review Board report was not the first indication that the mobilization planning system instituted by DOD had some problems of execution. In discussing the program with the American Ordnance Association (AOA) at the first meeting of its newly formed Mobilization Readiness Division in 1966, the Assistant Secretary of Defense for Installations and Logistics had noted that studies had revealed unbalanced mobilization planning, outdated planning agreements, inadequate emphasis on the need for planning, and inadequate follow-up by the Government. He also stated that measures were being taken to improve the mobilization planning effort. Mobilization planning was to receive a new charter within DOD, and DOD had become aware of the need to maintain a high level of industrial responsiveness (both in-house and at contractor levels) in the form of current machine tools, adequate maintenance funding, and procurement of components to reduce production lead times.⁹⁶

A section of the AOA's Mobilization Readiness Division held a technical meeting on 23 September 1969 to discuss the new mobilization planning guidance mentioned by the Assistant Secretary. The AOA had worked closely with DOD on the new guidance and apparently had a substantive role in developing the final product, the Industrial Mobilization Production Planning Manual. In contrast

to the regional industrial mobilization meeting held in Philadelphia in 1956, which drew representatives from nearly 300 companies, the meeting in Chattanooga drew representatives from only 16 companies to talk about a program that had just been given a special imprimatur by the Secretary of Defense. In a memorandum to the Services and the Defense Supply Agency, on 24 July 1969 Melvin Laird had stated that "the primary objective in establishing a viable and realistic Industrial Mobilization Production Planning Program within the Department of Defense is to have available the industrial base necessary to meet a limit in war need. This base is vital to our national security . . . I am accordingly approving the full execution of this program without delay."⁸⁷ Another striking contrast appears when this guidance is compared with the execution of planning by DCAS and its ASPPOs noted in the Joint Logistics Review Board report.

The new guidance being discussed at the meeting was not new in the sense of being a radical break with the past. Instead, it was an evolutionary change that reflected some of the lessons learned over the years since the Annex 47 planning back in 1947. For example, the new manual included guidelines for planning between the prime contractor and his second-and third-tier subcontractors. The new guidance reflected the best thinking of a 2-year effort involving significant input from industry through the American Ordnance Association.⁸⁸

In assessing the industrial mobilization planning system, W. L. Powell of General Electric said he believed that most industrial leaders agreed that some form of planning to produce military equipment under mobilization conditions was essential, and that they recognized that limited war could include an all-out conventional war. Powell said these leaders believed that the 1519 system was, or could be, a workable procedure for supporting mobilization planning, but he expressed some reservations. The following paragraphs summarize his reservations, which remain relevant today.

Industry felt intense pressure from Congress and DOD to reduce the cost of equipment sold to the military. Industry is wary of incurring any increased overhead expense that might be disallowed by the Government or might contribute to an already serious profit squeeze. When direct price competition is involved in firm fixed-price contracts, the cost to the contractor of participating in the program can only come from profits. Nonparticipants in the program or

Vietnam War Era

those who participated in name only, with minimal effort and little expense, have a clear profit advantage over conscientious participants. In those instances of negotiated cost, the contractor is faced with a possible cost disallowance in whole or part by DOD auditors.

Multiproduct manufacturers faced the problem of having their mobilization planning schedules filled up by items that might not represent their best long-term capability. To plan most effectively, particularly at the prime-contractor level, industry needs to understand the total program requirements. Many potential participants were losing their enthusiasm because they could not see the end objective and time phasing required.

Another reservation related to the Government program that called for the "time-phased replacement of Government-owned facilities with contractor-owned facilities." Industry did not believe it could commit itself to mobilization schedules if it did not have complete assurance that the required equipment would be available in time to meet commitments. For the Government to suggest that industry acquire equipment solely to meet mobilization requirements, when there was no current opportunity for profit, was simply not a realistic proposal for most of industry. Powell was confirming the soundness of the mobilization base concept of the prior decade, which recognized that to gain industry's cooperation, industry must be offered a profit; if that effort failed, Government-owned facilities and equipment must be retained purely for mobilization.

Recommendations made by industry included the need for all to acquire a uniform understanding of the program. To this end, intensive training sessions were proposed for both Industry Planning Representatives and the ASPPO. Also, in a statement that must have been based on unpleasant experience, it was noted that the understanding and tact with which the Government and the ASPPOs presented the requirements to industry might be a significant factor in the willingness of industry to participate in a voluntary program.⁹⁹

In reference to the contrasts between the two meetings in 1956 and 1969 and in industry perceptions of the DOD industrial mobilization planning, the DOD representative at the Chattanooga meeting asked those present, "How can we reach the top executives in industrial firms to sell them on the importance of the mobilization planning program?"¹⁰⁰ The question speaks volumes about the de-

cline of industrial mobilization planning, within both Government and Industry.

Industry Advisory Council

Creation of the IAC Subcommittee

About the same time the Joint Logistics Review Board was issuing its report, other groups also were expressing their concern about the industrial mobilization problem in 1970. Downward trends in defense industry employment coupled with forecasts of reduced budgets were causing observers to question whether the United States would have sufficient industrial capability to support any future military emergency. For example the President of the National Security Industrial Association sent a letter to the President on 10 September 1970 expressing concern about the failure of national policymakers to provide for "the maintenance of a properly balanced minimum industrial mobilization base." He added, "Unless some mobilization base planning is factored into the cut-backs in defense programs, many essential technical and production capabilities in industry will cease to be available."¹⁰¹

A similar issue was raised by the Industry Advisory Council (IAC), which consisted of 24 industry members who met three times a year with the Secretary of Defense and other prominent officials. As a direct result of discussions at a meeting in October 1970, the Deputy Secretary of Defense chartered a subcommittee of the IAC on 9 November to consider the US industrial base. The subcommittee was directed to study and make recommendations on the following matters:¹⁰²

- The extent to which the Department of Defense should rely on the normal marketplace to satisfy its needs in a limited mobilization period
- The adequacy of past and present mobilization base planning
- The need for clearly defined mobilization requirements
- The need for maintaining sufficient developmental capability for highly sophisticated weaponry and the relationship of this capability to mobilization planning
- The consistency and adequacy of Defense Department plans for Government-owned industrial facilities and plant equipment in relation to sound mobilization planning

Vietnam War Era

- Various alternative methods whereby an adequate industrial mobilization base can be assured to meet Defense mobilization requirements.

Vice Admiral Eli I. Reich of the Office of the Secretary of Defense was appointed chairman of the subcommittee and John Lawrence of Dresser Industries was named vice chairman. The subcommittee included seven representatives from OSD, the Office of Emergency Preparedness, the Commerce Department, the services, and the Defense Supply Agency, plus five industry members. During the course of the study, substantial industry participation aided the subcommittee in forming its opinions and recommendations. Several industry associations were invited to present their views to individual members of the subcommittee. The Council of Defense Space Industries Association worked with Chairman Reich, the NSIA worked with Mr. Vincent P. Huggard, the Army member, the Aerospace Industries Association worked with the Air Force member, and the AOA worked with the Navy member. In addition, contributions were received from other groups such as the National Machine Tool Builders Association, the Machinery Dealers National Association, the National Precision Miniature Bearing Association, and the National Tool, Die, and Precision Machining Association.¹⁰³

Conclusions and Recommendations

The subcommittee's final report appeared in June 1971. The group had surveyed a total of 68 industries to determine the employment impact of the buildup for Vietnam from FY 1965 to 1968. Six industries accounted for 47 percent of the 1.4 million jobs created by the Vietnam buildup, and three of these—ordnance, transportation, and aircraft—accounted for 38 percent of all defense jobs added. After a peak in FY 1968, employment had declined by FY 1971 to a level only about 300,000 above the FY 1965 level.

The subcommittee illustrated the increasing costliness in defense production during this time by pointing out that \$1 billion worth of program paid for 80,000 jobs in FY 1965, but only 61,000 in FY 1971. The subcommittee also noted a high concentration of professional and craft skills in the industries in decline, and a severe instability in specific areas such as helicopter production, naval production facilities, and aircraft plants.¹⁰⁴

To implement the subcommittee's recommendations, Deputy Secretary of Defense Packard created a DOD steering group, with OEP and Commerce participation, as achievements resulting from the subcommittee's work included revised DOD instructions, a revised industrial planning manual and planning forms, and changes to the Armed Services Procurement Regulations to integrate industrial preparedness with current procurements. The next paragraphs describe the major conclusions and recommendations, and the actions taken to implement them, grouped under the four characteristics the IAC subcommittee had outlined as the requirements for a good industrial planning system: consistency, relevancy and thoroughness, credibility, and responsiveness.¹⁰⁵ Also following is an assessment of the proposals and actions taken to implement them.

Consistency

The IAC subcommittee found inconsistency among the services with respect to planning periods, the assumed M-Day, and the force structure used as a basis for planning. In effect, the services were assuming different types of wars fought in different periods of time.

To correct the first problem, a change was made to require the services to use a common M-Day and a planning period of 3 years. Planning would be updated or revised annually to continually reflect this period, thereby providing the planned producer with the total DOD demands upon him without the confusing differences generated by inconsistent input.

To correct the problem of inconsistent force-level planning, the IAC subcommittee recommended that all services use the Joint Strategic Operational Plan Objective Force (JSOP Objective Force) as a basis for planning. The JSOP represented the view of the Joint Chiefs of Staff concerning what the force structure should look like to support the current strategy, unconstrained by the budget. According to the IAC subcommittee, the JSOP provided for a force structure about 25 percent higher than that included in the 5-year defense program.

If all the services were to use the JSOP force structure for planning purposes, all would be operating from a common base, one that appeared to be large and stable enough to support planning for emergency expansion of the industrial base. However,

Vietnam War Era

as far as the author has been able to determine, this recommendation was never acted upon. DOD has provided guidance that has allowed the use of broader requirements for planning than for investment, an approach that could be construed as complying with the recommendation of the IAC subcommittee, but there is no evidence that separate requirements based on the JSOP force structure were ever generated and used.

Carrying the logic of the IAC subcommittee a step further, it could be asked whether the JSOP Objective Force represents a truly unconstrained requirement? This issue takes one back to the definitions of full vs. total mobilization. In other words, does use of the JSOP force structure give a true indication of what would be required to fight the total threat, or is it in fact, constrained by assumptions of strategy? Without making a thorough examination of the issue, the other believes that the JSOP does not represent a truly unconstrained requirement but only a less constrained requirement. And it is not presently used for industrial mobilization planning, notwithstanding the IAC subcommittee recommendations.

Relevancy and Thoroughness

The IAC subcommittee concluded that because DOD was trying to plan for too many nonessential items, it was not able to accomplish sufficient in-depth planning for the critical items. The subcommittee recommended that the criteria should directly relate to these objectives of the planning program:

- Reducing lead times for selected items
- Providing or increasing the capacity to produce the selected item
- Providing for some efficient and economical means of production
- Assessing the tradeoff between war reserves and production base
- Maintaining an adequate mobilization production base.

One needs to contrast the above set of objectives for planning with industry with those of Annex No. 47 of the 1947 Industrial Mobilization Plan identified earlier. There is an essential difference in unstated assumptions between the two. The Annex No. 47 objectives assumed a wholesale conversion of industry from peacetime consumer products to wartime military products. The IAC subcommittee's objectives seem to have misplaced the concept of a con-

Vietnam War Era

version of the economy to mobilization production. Taken together with the issue of the basis for planning (i.e., force structure and requirements) the IAC subcommittee's objectives did not provide:

- A determination of where the most essential military items can be obtained
- Industry with the knowledge of its task in wartime and the encouragement to accomplish industrial planning for rapid industrial mobilization
- A current record of competent producers and their capacities

The author's assessment is that the IAC subcommittee, while recognizing that the planning was constrained, did not follow through and identify all of the constraints. Their set of objectives seem to be constrained, and, by rewriting guidance and criteria to match their objectives, a further constraint is cranked in which tends to move away from the Annex No. 47 objectives. The IAC subcommittee provided no proposals to add more resources to the planning effort; instead it focused on how to make planning better, ostensibly with the same resources.

The DOD criteria were rewritten to match the IAC subcommittee's objectives, reducing the number of potential planning items from between 150,000 and 200,000 to between 8,000 and 10,000. DOD guidance was changed, by definition, to limit each service to planning for 2,000 total items, including 35 major weapon systems.

Through in-depth studies, planning was to be focused on the 35 select weapon systems. An implementation group was established to review approaches to improve vertical planning down through the subcontractor structure. Another group was directed to integrate the Department of Commerce Industry Evaluation Board (IEB) studies with DOD industrial preparedness planning. The IEB studies are intended to determine the maximum national capacity to produce specific items, such as foundry equipment and supplies, that could be used to assess the ability of industry to produce military items. The IEB studies accomplished under the authority of Section 705 of the Defense Production Act differ from DOD industrial planning in that industry does not have the option of response, i.e., a response to the IEB is mandatory. Conceptually, the IEB studies relate to the Component Studies accomplished during the 1950's which were coordinated by DOD and Commerce. However, the IEB studies are broader in that they identify the total national

Vietnam War Era

capacity to support both critical civilian and military production. The force of law allows the Commerce Department to collect information that might otherwise be reserved because of its proprietary nature.

Part of the intent of the IAC implementation effort was to substitute horizontal planning for vertical planning for critical pacing components affecting several items (that is, a horizontal look across an entire industry capable of manufacturing a component as opposed to a series of vertical looks down through an industry, based on vertical planning for individual end items). The IEB studies were to be one means of attacking the problem of horizontal planning. Although the industrial planning manual was revised to include reference to the responsibilities of the Department of Commerce, there is no evidence that DOD has used the IEB studies regularly.

To summarize, the IAC subcommittee set reasonable goals to improve planning for critical items, but the actions taken to accomplish the goals were generally ineffective.

Credibility

The IAC subcommittee review identified a number of anomalies undermining DOD's industrial mobilization planning. For example, the DOD endorsed quality planning by industry but offered no material incentives to producers. Also, DOD's proposed reliance on planned producers conflicted with other DOD policy requiring acceptance of the lowest bid. And the proposed maintenance of an essential base conflicted with DOD's facilities phase-out policy.

For each of the above anomalies, the IAC group noted the fact that the desired goal was not supported by the actual practices of DOD. What is important is not that these anomalies were discussed but what was done to try to solve the problem. In most instances the intent was better than the result.

To encourage industry to do a high-quality job of planning, the IAC subcommittee proposed more innovative use of leasing and sales authority and changes in procurement practices, including a range of contractual alternatives for obtaining data (to include authority to pay for industrial preparedness data). In addition, the subcommittees recommended that during periods of reduced procure-

Vietnam War Era

ment, DOD give preference to commercial sources over Government-owned facilities, with some exceptions.

This last policy has created some problems for maintenance of the mobilization base. A better policy would be to require that consideration be given to commercial sources but that the long-term needs of the mobilization base be the final determinant. In those instances of minimal commercial capacity, such as small-arms ammunition, it makes much more sense to keep the Government-owned base in a warm status than to protect a privately owned base that can satisfy only a very small portion of the mobilization requirement. With respect to the problem of reconciling reliance on planned producers with the requirement to accept the lowest bid, the IAC subcommittee proposed to use existing authority to maintain plants essential to our mobilization base through Exception 16 of ASPR (now DAR), which allows the Government to ignore the low-cost bidder. The proposal by the IAC to place more (but still discretionary) emphasis on using Exception 16 should be contrasted with the guidance of ODM in the 1950's which *directed* that the maintenance of the base would be an overriding consideration as a normal way of doing business. Put another way, it is ridiculous that there was an anomaly ignoring planned producers in the first place.

As for the inconsistency between the Government's phase-out program and the maintenance of a minimum mobilization base, the IAC subcommittee simply reaffirmed the phase-out policy, with the sole sop to the mobilization base being a Negotiated Sales Bill then pending before Congress that would have allowed the Government to sell to the contractor actually holding the equipment. Given no passage, Government-owned facilities and equipment that were being disposed of would have to be sold on a competitive basis with no assurance the planned producer would win the competition, thereby preserving the mobilization base. The Negotiated Sales Bill failed to pass and there is no authority to allow other than competitive sales today.

The whole idea of a phase-out program is contrary to the reason for creating a Government-owned industrial base in the first place, that is, to achieve a state of mobilization readiness to support future mobilization. If the DOD is to have a serious mobilization policy, a policy of forced disposal of anything except obsolete equipment clearly excess to mobilization requirements is simply not

Vietnam War Era

rational. Yet that was, and to a lesser extent is, the DOD policy today.

Responsiveness

The IAC subcommittee noted that DOD did not use methods that would buy time through shortcuts or increased productivity methods, such as the machine-tool trigger-order program of the 1950s, the placement of contingency contracts with planned producers, support for manufacturing technology projects, and the maintenance of hot production lines for essential weapons systems. DOD initiated action at that time with the Commerce Department to reinstate the trigger-order program, but according to Commerce Department sources, the trigger-order program for machine tools is not now effective because machine tool builders have no current contingency contracts. The reason for this has apparently been a lack of departmental emphasis on the program until quite recently. Similarly, despite IAC recommendations, preplaced contingency contracts with planned producers are uncommon if they exist at all.

Manufacturing technology has received continuing support, particularly in the Army, but the emphasis has been in productivity and economic payback for peacetime applications, as opposed to enhancement of mobilization capability. Mobilization capability has been a constant goal, however, in manufacturing technology associated with the Government-owned munitions base.

Hot lines for key weapons systems tend to be almost entirely a function of available programs. The Army recognizes the importance of maintaining a warm production line and makes that a consideration in its programming decisions. Maintenance of the mobilization base is not the key factor in the decision to allow a production line to go cold, however—dollars are.

Emphasis

The IAC subcommittee cited the lack of continuing, strong emphasis over the years as the root of all the failings and shortcomings of industrial mobilization capability. The creation of the IAC group and the appointment of high-level managers from the services was, in fact, a form of emphasis that had not been applied in

years. (Reich noted that the attitude within the IAC group itself had become much more positive over the course of its deliberations.)

The IAC subcommittee also changed the name of the Industrial Mobilization Program to the Industrial Preparedness Program to better reflect the full range of activities of the programs.

Unfortunately, the emphasis created by the IAC subcommittee was not self-sustaining, except for individual programs that had special sponsors and a life of their own, such as the Army's Munitions Production Base Modernization and Expansion Program. As the 1970's progressed and DOD budgets became tighter, not only did the emphasis on the industrial mobilization base once again fade, but the concept became an anachronism to many decisionmakers in the Government.

Summary

The IAC subcommittee identified real problems in industrial mobilization, including the basic issue of lack of emphasis, *but* it offered generally incomplete solutions to those problems. The IAC subcommittee ignored resource issues except to recognize implicitly that resources were a constraint. For example, instead of proposing that planning with industry be properly supported with resources, the IAC subcommittee proposed that planning be constrained. Instead of recognizing that maintaining an industrial mobilization base by definition is not a low-cost proposition and that private industry can only operate in a profit environment, the IAC subcommittee continued to support a flawed phase-out policy, apparently for political reasons.

Finally, the subcommittee apparently did not recognize that industrial mobilization must transcend the Department of Defense. Notwithstanding the participation of the Department of Commerce and the Office of Emergency Preparedness, which was shortly thereafter downgraded, industrial mobilization received no emphasis outside DOD.

Chapter 6

DEFENSE INDUSTRIAL BASE ISSUES TODAY

Perhaps the best statement of defense industrial base issues today is contained in the 31 December 1980 report of the Defense Industrial Base Panel of the House Armed Services Committee. *The Ailing Defense Industrial Base: Unready for Crisis*. This chapter leans heavily on that report.

Deterioration of the Defense Industrial Base

The Defense Industrial Base Panel, chaired by Richard H. Ichord, found that the general condition of the defense industrial base has deteriorated and is in danger of further deterioration. The Ichord panel also reported these findings:

- The defense industrial base is unbalanced; excess production capacity at the prime contractor level is not matched by capacity at subcontractor levels.
- The industrial base is not capable of surging production in time to meet a national emergency.
- Lead times for military equipment have increased significantly in the past 3 years.
- Skilled manpower shortages exist now and are projected to continue throughout the decade.

Defense Industrial Base Issues Today

- The United States is becoming increasingly dependent on foreign sources for critical raw materials and for some specialized components for military equipment.
- Capital investment in new technology, facilities, and machinery has been constrained by inflation, unfavorable tax policies, and management priorities.¹⁰⁶

For reasons that appear to relate to jurisdictional authority within the House of Representatives, the Ichord panel applied a defense label to many problems that are much broader in their implications. For example, the issues of skilled manpower shortages, dependence on foreign sources for raw materials, productivity growth rates, and low capital investment go much beyond the defense establishment in their impact on the economy. The Ichord panel approach is appropriate, nevertheless, because the defense industrial base will tend to mirror the economic health of the entire base and, in the event of mobilization, would be constrained by the larger problems of the base. In an indirect way, the panel recognized the truth of an up front premise of the Korean War era mobilization, that is, that the basic economy must expand to serve as a foundation for a healthy defense industrial capability.

Unbalanced Base

Although several witnesses testified that the defense industrial base is shrinking, the panel noted only that there was considerable turbulence. Lower-tier subcontractors were acknowledged to be generally harder hit by defense program instabilities than prime contractors were. Specific problems affecting the sub-tier structure included the Government's excessive administrative requirements, sporadic procurement practices, and restrictive documentation and specification requirements, plus a lack of flow-down of benefits from the prime contractor. Sub-tier contractors agreed that they preferred to do business with the commercial sector because it is more stable.¹⁰⁷

In a 1977 Civil Preparedness Review covering industrial mobilization, the Joint Committee on Defense Production defined at least two types of erosion of productive capacity: an absolute loss of capacity and a withdrawal of producers. The Joint Committee found few examples of absolute erosion (the reduction of manufacturing capacity below some critical minimum required for production of

military or military-related goods). The second type of erosion (the reduction in peacetime defense or defense-related manufacturing relative to some previous or desired standard) results largely from the withdrawal of potential contractors from defense business for any number of reasons, including declining profit margins in the defense sector.¹⁰⁸ Much of the erosion of the defense base appears to fall in the latter category. Many industrial firms, regardless of size, prefer commercial business to defense business.

Findings of the panel that contracting procedures are excessively restrictive and that tax and profit policies need review are related to the erosion problem. A more basic issue, however, is the scope of the administrative burden the Government imposes on contractors. Many contractors find it a trial to do business with the Government, and apparently many companies are simply choosing not to. Caterpillar Tractor Company is an example of a firm, not small business, that has withdrawn from defense business except for the sale of off-the-shelf equipment. Caterpillar decided that the potential defense business profit did not justify the cost of changing its internal accounting system to meet the new requirements of the Cost Accounting Standard (CAS) system recently imposed. Therefore, the Government has essentially lost access to the talents of this firm, which performs 85 percent of all research and development in its industry.¹⁰⁹

The administrative burdens imposed in Federal contracts need to be examined so that those elements that are keeping important potential contractors from defense business can be removed.

Lack of Surge and Increasing Lead Time

The lack of timely surge capability and increasing lead time for military equipment are related findings of the panel, since increased lead times preclude surge—short-term production increases in peacetime. Basic capacity is one determinant of surge capability and lead time. The 1980 Defense Science Board study of Industrial Responsiveness pointed out many reasons for lead time increases: raw material shortages (e.g., titanium sponge); inadequate capacity (e.g., large backlogs in specialty metals fabrication); small buys of electronic components and subsystems; very limited sources for specialty items such as optical components, bearings, and electrical connectors; increasing complexity and sophistication

Defense Industrial Base Issues Today

of parts; and testing and qualification requirements. Implicit in the increases in lead times are cost increases as well.¹¹⁰

Many of the reasons for growth in lead time are related to the lack of adequate capacity. In the aerospace industry, for example, bottlenecks have been created by demand from a booming commercial aircraft business. The industry apparently believes that the current high demand will drop in a year or two, so the base has not expanded to accommodate the additional demand. Notwithstanding the priority that is supposed to be given to defense business based upon the National Priorities and Defense Materials System established under the authority of the Defense Production Act, defense business tends to simply wait at the end of the queue.

Unstable demand is one cause of capacity problems. Another cause is the size of the requirement. Industry is unwilling to invest unless it sees an adequate opportunity for profit. The combination of fluctuating defense demands and very small buys provides very little incentive for private investment.

Dependence on Foreign Sources

The Ichord panel expressed concern about dependence on overseas labor for assembly of critical defense-related components, which the group found as worrisome as the dependence on foreign critical materials. The panel specifically addressed the assembly of United States-manufactured semiconductor devices in Malaysia, Singapore, Taiwan, the Philippines, Korea, and Hong Kong. At the same time, imports from Japan are making serious inroads on the United States semiconductor industry.

Moreover, the United States share of the total manufacturing exports of the world's industrialized nations dropped from about 25 percent in 1960 to about 17 percent in 1979. Import penetration into certain industrial sectors such as machine tools, industrial fasteners, and semiconductor devices raises the question of what is an acceptable degree of dependence, if any, on foreign sources for defense production.¹¹¹ The problem is of particular concern in the context of a mobilization, when foreign sources might be cut off. Clearly the United States has developed dependencies that would have been unthinkable during the mobilization of the Korean War era.

Critical Materials on Foreign Sources for Dependence

The Ichord panel found the shortage of critical materials, and the resulting dependence on uncertain foreign sources, to be eroding the foundation of United States defense capabilities. The committee reported these findings:

- The United States is heavily dependent on other nations for its supply of critical materials.
- The United States does not have an effective national nonfuel minerals policy that promotes our national security interests.
- Trends toward excessive and unreasonable governmental regulations are crippling the basic mineral industries of the United States and restrictive laws and regulations are prohibiting or making it economically unfeasible to exploit minerals on United States public lands.
- The strategic and critical materials stockpile is woefully inadequate for defense needs; much of the existing stockpile requires upgrading.
- The United States has not made effective use of Title III of the Defense Production Act to expand domestic supply and productive capacity.¹¹²

The situation presents a dramatic contrast to the period of the early 1950's when national policy recognized the necessity for a healthy economic base to undergird a defense industrial base capable of supporting a mobilization for a full-scale war. Instead of restricting exploration of domestic mineral deposits, the United States then actively supported the creation of domestic mining and processing plants through Government loans, loan guarantees, purchase commitments, guaranteed production levels, and guaranteed prices as provided by Title III of the Defense Production Act, and tax amortization certificates. By the end of the 1950s the strategic stockpile was essentially filled.

Policymakers need to examine the whole philosophy of "economic interdependence." The growing United States dependence on imported minerals is a result of the free-trade and open-market policies that have been fixtures in American foreign policy since before World War II. Dependence has evolved not because of a lack of resources in this country but because factors such as ore quality and cost have made overseas material more attractive economical-

Defense Industrial Base Issues Today

ly. Without a national policy such as we had in the 1950s, which held that United States mineral independence was essential, the current situation has been fairly predictable. Barring some change in United States policy, the processing of minerals as well as the mining of raw materials will move overseas for reasons of cost.

Compounding the restrictions barring exploration of minerals in this country are the costs associated with environmental and occupational safety and health laws. As these nonproductive costs are compounded by the rising cost of energy in this country, pressure to move the processing plants to the source will increase particularly with respect to South Africa and the developing countries of sub-Saharan Africa which have the potential for hydroelectric power.

The situation in strategic and critical minerals can be expected to get worse. A national nonfuel minerals policy that addresses national security issues is essential.

Excessively Restrictive Contracting Procedures

The Ichord panel found that DOD policies and procedures for the procurement of property and services are excessively inflexible and discourage the use of types of contracts that would promote stability, encourage capital formation, and lead to cost-saving efficiencies. Specific findings included these:

- Existing restrictions on advance procurement, multiyear contracting (including cancellation ceilings), and funding of defense contracts are unrealistic, given the prevailing economic realities in the defense industrial base.
- Subject to normal congressional controls, multiyear contracting will reduce cost, encourage program stability, and enhance the defense industrial base.
- The use of multiyear contracts not exceeding 5 years to procure property and services (other than construction, alterations or major repair of real property) would offer maximum economies to the government at little additional risk.¹¹³

A broad range of witnesses before the panel agreed that multiyear contracting for defense requirements would have substantial benefits for DOD and industry, including small business. The chief benefit is the potential for making short-term cost savings while improving the industrial base to avoid higher future costs. For

Defense Industrial Base Issues Today

individual contracts productivity will be increased through economies of scale, establishment of a higher learning curve, stabilization of the workforce, and incentives to contractors to invest in capital equipment.

To facilitate multiyear funding the panel recommended changing the "full-funding policy" agreed to by DOD and the Appropriations committees, which requires budgeting for the total costs of a given number of usable end-items, to allow advance procurement of long lead-time components. Another change would be required in the law placing a \$5 million cancellation cost ceiling on multiyear contracts. Without an increased ceiling, there would be no basis to apply the technique to other than relatively low-value contracts with small savings potential.¹¹⁴

Multiyear contracting ultimately will be limited by the amount of funds made available to the services. Unless the services' program ceilings are significantly increased and there is a reasonable expectation of stability in the total programs, the services will not be able to accept the inflexibility inherent in the use of multiyear contracting. In other words, if multiyear funding is to be effective, budgets will have to increase.

Need for Review of Tax and Profit Policies

Another finding of the Ichord panel was that current tax and profit policies appear to discourage capital investment in new facilities and equipment that would increase productivity and improve the condition of the defense industrial base. Specifically, the panel believed that the executive branch and the appropriate committees of Congress should consider:

- Revision of tax laws to allow more rapid depreciation.
- Amendment or repeal of Cost Accounting Standard 409, "Depreciation of Tangible Capital Assets."
- Adjustment of progress payments to reduce contractor borrowing at high interest rates and a change in the law to allow inclusion of costs in defense contracts.
- Amendment of Cost Accounting Standard 414, Cost of Money as an Element of the Cost of Facilities Capital.
- Examination of the costs versus the benefits of safety, environmental, health, energy, equal employment, and other regulations.¹¹⁵

Defense Industrial Base Issues Today

Productivity Decline

The Ichord panel noted the general decline of productivity in this country, much of which can be attributed to tax laws and Government regulations, and the unrealistic approach Government takes in doing business with private industry. The general decline of productivity becomes a defense issue in that an adequate defense program will adversely affect the standard of living if the economy is not growing. The expanded defense programs of the Korean War era, when we moved toward mobilization readiness, were accomplished with minimum impact because of the concurrent commitment to an expanded economy as a basis for financing the defense programs. If the United States is to have a viable long-term defense program, the issue of productivity must be tackled.

The lack of productivity growth has stemmed largely from inadequate spending for new plant and equipment. Between 1960 and 1978, the United States was dead last among the free industrialized nations in spending for new tools and in growth of output per hour. This inadequate spending can be attributed largely to the lack of adequate capital funds, exacerbated by Government regulations directing the expenditure of significant percentages of the available capital on non-productive environmental and safety requirements. Any business firm in this country has three principal sources for capital: capital recovery (depreciation), reinvested earnings, and issuance of debt or equity. Depreciation allowances in this country are based on the original cost of the facilities and equipment and on the concept of "useful life." The recovery of capital is very slow and, because of inflation, is never enough to pay for the replacement of the facility. As a result, over time, many basic industries, including the steel industry, have declined.¹¹⁶

As was noted, things were different in the 1950s, when the Government encouraged the expansion of the economy by issuing accelerated tax amortization certificates that provided for a write-off in 5 years. Today, the United States now has one of the least industry supportive tax policies in the free world. Industrial buildings are depreciated over 30 to 45 years, and industrial equipment over 6 to 12 years. In contrast, Switzerland allows 50 to 80 percent depreciation in the first year for new machinery and Japan allows 95 percent in the first year.¹¹⁷

The lack of adequate capital for improvement in productivity is directly related to the directed use of much of the available capital,

Defense Industrial Base Issues Today

private and public, in solving environmental and occupational safety and health problems. No one has seriously argued that the Nation did not need to clean up the environment, but it has become time to reassess national goals. Much of the pollution problem has been addressed, with the expenditure of billions of dollars. The issue is how much is enough. Marginal improvements to eliminate the last few percent of the pollution may be as expensive as the first 95 percent, with concomitant operating costs driving product cost up as well. A consensus seems to be developing that without change in the tone and substance of adversarial relations between Government and private industry, American industry will continue to decline. While some people seem to believe that this country can do without some of its basic industries such as steel and minerals, there is no historical basis for such a belief.

Improvements in Profits

If Congress should provide for improved capital recovery by industry, Cost Accounting Standard 409, which bases depreciation on the historical useful life of assets for contract cost purposes, would effectively negate improved depreciation for defense contractors. In addition, Cost Accounting Standard 414, which was intended to give relief to contractors for the cost of money for facilities, unfortunately pegged the cost of money to the Treasury rate which has been less than the actual cost of money to industry. As a result, good intent has been frustrated by a change in the real world.

Finally, the way in which the Government issues progress payments to industry has not met the contractor's actual need for money to perform the contract. The Government's effort to protect itself against contractor nonperformance has imposed an inordinate burden on industry, which has to borrow money to meet its working capital needs. Since interest on debt is not allowed as a cost item, the effect is to drive the contractor's actual profits below the amount that the Government and the contractor had agreed was acceptable. It is in this context that the Ichord panel proposes changes.¹¹²

Defense Industrial Base Issues Today

Need for Leadership in Defense Industrial Planning

Finally, the panel found that, notwithstanding the essentiality of the defense industrial base to the national security, responsibility for the condition of the base is divided among the committees of Congress and within the executive branch. This diffusion of responsibility has contributed to a lack of effective long-range planning for industrial responsiveness. It has also made it extremely difficult to assess the overall effects of executive and congressional action in the defense industrial base. The panel made these observations:

- Responsibility for the defense industrial base is divided within Congress. Several committees have jurisdiction over matters impacting the defense industrial base, that is, interstate and foreign commerce, public lands, mining, minerals, procurement laws, defense production, procurement, research and development, and taxation.
- Responsibility within the executive branch is divided among the Departments of Defense, Commerce, Interior, Treasury, Energy, State, and others.
- Central leadership and coordination are needed in defense industrial preparedness as much as in the energy and environmental areas. The lack of concentrated leadership within the Congress and in the executive branch has served to mask from public view the acute problems affecting the defense industrial base.¹¹⁹

These findings of the Ichord panel apply not just to the defense industrial base but also, more broadly, to the entire national industrial base and its role in the economy. In fact, the problem goes beyond organization responsibility, to the question of national goals and underlying philosophy. In the 1950s we were guided by a commonly accepted set of principles with respect to national security. Our national goal of defense readiness, initiated by NSC-68, explicitly provided for development of our basic resources and for expansion of our industrial capacity as a mobilization base. Over and above the needs of defense, we sought to maintain a healthy and productive civilian economy.¹²⁰

To pursue that goal, the Office of Defense Mobilization was created to oversee mobilization activities in the entire executive branch; its head was given the status of a cabinet member and made a member of the National Security Council. Mobilization readiness was a yardstick against which most of the actions taken in the various executive agencies were measured. Industrial mobili-

zation readiness was a national goal and a responsibility of almost all the executive departments.

Evaluation of Federal Preparedness Organizations

The current problems of civilian organizational failure can be better understood through an examination of the history of Federal preparedness organizations since World War II.

The history starts with the recommendation of the War Production Board in its final report in 1945 that a civilian mobilization agency be created. The National Security Act of 1947 created the National Security Resources Board (NSRB). President Truman added an Office of Civil Defense to the NSRB in 1949. In 1950, the Office of Defense Mobilization (ODM) was created under the authority of the Defense Production Act to direct, control, and coordinate all mobilization activities of the executive branch except for long-range mobilization planning, for which the NSRB continued to have responsibility. The Federal Civil Defense Act of 1950 created the Federal Civil Defense Agency (FCDA), established in the Executive Office of the President.

In 1953, President Eisenhower combined the NSRB and ODM, giving full responsibility for mobilization planning to the latter agency. In 1958 (under Reorganization Plan No. 1), the FCDA and ODM were consolidated in a single unit in the Executive Office of the President, which became the Office of Civil and Defense Mobilization (OCDM). In 1961, President Kennedy assigned emergency operations to the Departments of Defense; Health, Education, and Welfare; and Agriculture, while reconstituting planning and coordination in the Executive Office in a new agency called Office of Emergency Planning (OEP). Within DOD, the civil defense function was placed at the Office of the Secretary of Defense level until 1964, when DOD civil defense functions were transferred to the Army. In 1968, the Office of Emergency Planning was renamed the Office of Emergency Preparedness and retained within the White House.

In 1972, Defense Secretary Melvin Laird created a new agency, the Defense Civil Preparedness Agency (DOPA), to carry out DOD civil defense operations. In 1973, President Nixon abolished the Office of Emergency Preparedness and assigned residual planning and coordination and stockpile functions to the General

Defense Industrial Base Issues Today

Services Administration (GSA), import monitoring to the Treasury Department, and national disaster functions to the Department of Housing and Urban Development (HUD). To accommodate these latter responsibilities, HUD created the Federal Disaster Assistance Administration (FDAA). In 1974, GSA created the Office of Preparedness, which was given a new title of Federal Preparedness Agency (FPA) in 1975.¹²¹ That is the way things stood in 1977 when the Joint Committee on Defense Production conducted a review of the entire issue of emergency preparedness and industrial mobilization and, naturally enough, found it to be extremely disjointed. As a result of that review, Reorganization Plan No. 3 of 1978 created the Federal Emergency Management Agency (FEMA), which began operation in April 1979. Five agencies were consolidated---DCPA, FPA, FDCA, the US Fire Administration, and the Federal Insurance Administration.¹²² FEMA apparently has all of the planning authority of the National Security Act of 1947 and the residual coordinating authority of the Defense Production Act. Clearly, however, the Ichord panel does not believe that FEMA has been performing a leadership role in Defense industrial base preparedness planning.

Appeals for New National Policy

The background just outlined indicates that, at some time in the period covered, perhaps before 1973, defense mobilization stopped being a national goal and priority. The American Defense Preparedness Association, in a recent white paper, reported that "there currently does not exist clear-cut national direction regarding Defense Materiel Readiness and Industrial Preparedness." To solve this problem, the ADPA proposes that "a Presidential Decision Memorandum (PDM) be issued to clearly set forth National Policy on defense readiness and industrial preparedness."¹²³

One of the most impressive witnesses to address the House Committee on Armed Services prior to the establishment of the Panel on Defense Industrial Base was Harry J. Gray, chairman and chief executive of United Technologies Corporation. Gray, with a broad perceptive grasp of the current defense industrial situation, suggested that it might be time to reestablish an office of mobilization planning, headed by a Cabinet level officer, to work closely with the Department of Defense and industry. Gray also said that

Defense Industrial Base Issues Today

an essential foundation for such action is the commitment of the country to a certain level of preparedness for an emergency.¹²⁴

It is apparent that the Ichord panel was listening to Gray, the ADPA, and others when they recommended that the Committee on Armed Services encourage the President to establish within the Executive Office of the President a point of authority to initiate *action*, and to direct and coordinate the efforts of the several responsible departments and agencies, necessary to solve the many problems relating to productivity, quality, manpower, and critical materials that afflict the defense industrial base.¹²⁵

Chapter 7

DEFENSE MOBILIZATION ISSUES

The previous chapter focused on DOD weapons acquisition and the attendant problems of the defense industrial base. This chapter focuses on issues associated with the capability of the Nation to mobilize the industrial base for the production of military materiel in the event of war.

Reasons for a Mobilization Capability

According to NSC-68, in 1950 the Soviet design called for the complete subversion or forcible destruction of the machinery of government and structure of society in the countries of the non-Soviet world and for their replacement by an apparatus and structure subservient to and controlled from the Kremlin. The United States was said to be the principal enemy whose integrity and vitality must be subverted or destroyed by one means or another if the Kremlin was to achieve its fundamental design. NSC-68 predicted that, in the event of future negotiations, the Kremlin would have three major objectives in its dealings with the United States: (1) to eliminate the atomic capabilities of the United States; (2) to prevent the effective mobilization of the superior potential of the free world in human and material resources; and (3) to secure the withdrawal of United States forces from, and commitments to, Europe and Japan.¹²⁵ The history of the past 30 years would seem to confirm the NSC-68 description of the threat. Regarding Soviet objectives of

Defense Mobilization Issues

negotiation, the Kremlin has not done too badly on the first two, given the United States loss of nuclear superiority and the current condition of our mobilization planning.

If the technical and economic base of the European Economic Community were to come under the control of the Soviet Union in 1985, their combined gross national product in an unmobilized situation would be about \$3.3 trillion in 1977 dollars. The projected US GNP is about \$2.5 trillion in 1977 dollars. Clearly, unless one rejects the belief the Kremlin would pursue hegemony over the world,¹²⁷ the United States would be placed in a critical long-term situation regarding its continued existence.

Fred Charles Ikle, a former director of the Arms Control and Disarmament Agency and the recently named Under Secretary of Defense for Policy, has written several articles recently that support the reacquisition of a capability to mobilize industry. Ikle points out that because we lack a conventional readiness and mobilization capability, we must rely on nuclear forces, and these nuclear forces are no longer adequate to compensate for our inferior conventional forces. A realistic mobilization capability, would strengthen deterrence of aggression, and if it were actually used, it could, over time, eliminate our inferiority in conventional arms. The point is also made that democracies such as ours are unable, or unwilling, to sustain over many years the same level of expenditure that a totalitarian regime such as the Soviet Union's imposes on its people. We must rely on our capability to mobilize and expand military strength in an emergency.¹²⁸

Other authors have taken a different tack on mobilization. Paul Bracken of Hudson Institute has proposed limited mobilization as an alternative to the precipitous employment of nuclear weapons. The development and use of a mobilization option would expand the alternatives available to the President in response to a crisis. Such an option would be intended as a threatening move to the Soviet Union and could have the effect of slowing down crisis momentum. Bracken has demonstrated that if the United States and the Soviet Union were to get into a mobilization race or a long war, the United States could clearly win from an economic, production standpoint. The situation now, however, is different from that of the 1950s, when the Soviet Union was unable to match the American mobilization; the long-term effect was to insure U.S. military superi-

Defense Mobilization Issues

ority until the mid-1970s. Now the production gap is much smaller, although the United States would still have the edge.¹²⁹

A study by the System Planning Corporation takes a different view of the relative mobilization capability of the United States and the Soviet Union. Because of prior preparations for mobilization, the Soviets can undertake mobilization increases faster than the United States. If inventories were equal at the start, it would take the United States 2-1/2 years to take the lead. If the Soviets were to start with a 2-to-1 advantage in equipment on hand, the United States would require 5-1/2 years to catch up. If the Soviets were to start with a 3-to-1 advantage, the United States would never catch up.¹³⁰

If other arguments were not persuasive, then, a compelling reason for the United States to reestablish an industrial mobilization capability is the fact that the Soviet Union actively maintains a state of mobilization readiness that would allow them to accelerate production faster than we could. The evidence is that the Soviet Union and its Warsaw Pact allies perform detailed mobilization planning for conversion of civilian production to military equipment, which has the effect of adding significantly to unit costs for peacetime production. According to one analyst, the effect of the mobilization program in the machine-building industry in Poland was to add 10 to 20 percent to the cost of all units produced, both civilian and military.¹³¹

Further evidence of the importance of mobilization planning to the Soviet Union has been provided by Sumer C. Aggarwal, an Indian national who was educated and worked in the USSR. According to Aggarwal, periodic mobilization "fire drills" are run in Soviet factories, during which production is surged 100 percent within 6 to 9 months. These "fire drills" are run every 3 years to convert production from civilian production to military. Aggarwal believes that the Soviet Union will be able to mobilize much faster than the United States.¹³²

Short-War Philosophy

At the root of much of the problem of the mobilization base is the short-war philosophy that has evolved over time. People who espouse the short-war philosophy apparently believe that a prolonged war with the Soviet Union could never take place. Three broad reasons are as follows: first, if NATO forces were successful in blunting an attack on Western Europe, subsequent military oper-

Defense Mobilization Issues

ations would be conducted only to preserve or restore the territorial integrity of the alliance. The war would be terminated by a political settlement rather than a military victory. A second reason is that if U.S. and NATO forces were pushed off the continent, and perhaps out of Great Britain as well, the United States would accept the defeat and retrench. There would be no attempt to counterattack because of Soviet military superiority or the fear of strategic nuclear war or both. Third, if a strategic interchange were to take place between the United States and the Soviet Union, the results would be so catastrophic as to render a prolonged war impossible.

Flaws in this reasoning abound. Any war in Europe would be at great cost of lives and materiel. In such a situation few nations would be willing to accept the status quo. Political negotiations rarely bring a quick end to fighting, as experiences in Korea and Vietnam have shown. Immediate military superiority by the Soviet union need not automatically prevent the United States from continuing organized conflict after an occupation of Europe. Given the long-term threat from a Soviet Union which had integrated the European economy into its own, it would be in the best interests of the United States to pursue a favorable conclusion early rather than later on Soviet terms. Ultimate national survival would be at stake for the United States so it must be assumed that we would not shrink from the task.¹³³

Historically, there was another rationale for our not programing adequate resources for a long war. In the past, our military planners have argued that in any conflict our superior strategic resources would come into play well before our conventional supplies were exhausted. Our nuclear superiority would either help us end the war on satisfactory terms or destroy the aggressor. The role of our conventional forces was to create a "pause," a "firebreak," until the Soviet Union would be forced to retreat for fear of nuclear war. This rationale no longer is valid because the United States no longer has nuclear superiority.¹³⁴

Aside from philosophic reasons for believing in short wars, budgeting constraints over the years have engendered a type of circular reasoning. DOD and the Services have been persistently confronted with constrained resources over the years. In the context of affordability, it is clear that we must be prepared to fight at least the initial stages of a war, regardless of the ultimate duration of the conflict. The Army has explicitly recognized this fact in its pri-

orities, identifying near-term readiness as the top priority, followed by mid-term modernization, and long-term sustainability as the third priority. The Army does, however, recognize that it is essential not to assume that the next war will be short.

The short-war concept has tended to become the basis for establishing requirements, rather than the rationale for allocating fiscally constrained resources against an unconstrained requirement. In other words, this circular reasoning results in the short war becoming the requirement. National goals fade from the equation. The goal of victory is replaced by one of not losing.

Industrial Base Investment

Although the short-war concept has been around for years (apparently the Air Force first embraced the philosophy as early as 1955 when it adopted the Force in Being concept), the application of the short-war philosophy to planning and programing gradually evolved as a response to the need to choose priorities because of constrained resources. Throughout the 1960s and 1970s DOD programers were instructed to use the D-to-P concept (that is the acquisition of adequate war reserves to last until the industrial base could build production to satisfy consumption) in computing war reserve requirements for everywhere except Europe. When the Secretary of Defense reemphasized industrial mobilization planning to the services in March 1966, he directed that the planning would be for an indefinite period for all forces except those earmarked for Europe, which would be based on a fixed number of days.¹³⁶ Affordability, or the firebreak philosophy, or both, had been at work for some time.

The abandonment of the D-to-P concept in the mid 1970s marked a sharp break with prior planning approaches. The war reserve stockpile for all theaters was to be computed on the basis of a fixed number of days, much less than the time required to last until the industrial base could expand production to match consumption (P-Day). In effect, the capability of the industrial base was decoupled from the war reserve stockpile. This decoupling meant a return to the policy of the very early 1950s prior to the development of the mobilization base concept.

The next change that occurred was the revision of DOD guidance concerning how new industrial facilities would be sized. Prior

Defense Mobilization Issues

to the development of the FY 1979-83 Program Objectives Memorandum (POM), the services had been allowed to build new facilities to match the capacity required for mobilization; in other words, the capacity of the facilities was to equal the level-off monthly mobilization consumption requirement. Beginning with the FY 1979-83 POM, however, DOD no longer allowed the services to invest funds to build a mobilization base that matched the mobilization consumption requirement. The initial change provided for building the industrial base to the size required to deliver the 180-day Authorized Acquisition Objective in 5 years, on a single-shift basis. In subsequent POMs, however, DOD tightened the guidance to the point that facilities could be built only to that size required to deliver the 5-Year planned buy on a multishift basis. What this meant was that new facilities were being limited to a capacity that was well under 20 percent of what we thought the requirement to be. As new items replaced old, particularly munitions, we would gradually lose all our capability for sustaining a conventional conflict. In effect, DOD guidance precluded any capability for sustaining combat for any except an extremely short conflict. There was no provision for adequate war reserve stocks or for adequate industrial capacity to compensate for short stocks.

Contrast this situation with that of the Korean War era mobilization, when we built redundant facilities larger than required for near-term requirements and operated them on a single-shift capacity to allow a rapid surge capability. The lack of surge capability decried by the Ichord panel can be traced to the lack of excess capacity throughout the structure, either from a lack of Government investment or, more commonly, a lack of adequate incentives for private investment.

Mobilization Requirements

One of the most striking features of an examination of industrial mobilization planning is the persistence of the difficulty of defining requirements. It was true in the 1920s when attempts were made to start industrial planning. It was true during World War II, when industrial production had to be turned down in late 1943 and 1944 for many military items. It was true after World War II, when we disposed of many facilities later required for the Korean War. It was true when we had to reconstitute a lot of discarded capacity to fight the Vietnam War. And it is true today.

Defense Mobilization Issues

Requirements are the foundation upon which the services make decisions about how to build facilities for new weapons systems or items. Requirements are the foundation for planning with a skeptical industry, and they are the basis for decisions concerning retention and maintenance of existing facilities and equipment.

Within the Army, mobilization requirements for industrial preparedness are derived from a computer simulation the primary purpose of which is to develop requirements for war reserve stockpiles. The model is not designed to focus on industrial preparedness issues, and the result is a mobilization requirement that is constrained by programing guidance, as opposed to one that reflects long-term mobilization planning.

Another problem with the requirements is that a whole class of items is excluded. Items computed on a mission basis, such as air-to-air missiles, do not have recurring requirements. It is assumed that all that will be bought is the exact number required to kill the assumed target; there is no assumption that the targets will ever be replaced. Once the procurement of the fixed buy is accomplished, the production line is not retained unless it is to be used for another item.

Requirements tend to fluctuate rather wildly from year to year, based on the output of the latest computer simulation. Changes in force structure, deployment, and other unprogramed changes are a fact of life. It is also a fact of life that effective industrial planning cannot be accomplished with requirements that fluctuate significantly from year to year.

In addition to the direct or indirect effect of short-war planning, another factor has a great significance for industrial mobilization planning: DOD mobilization requirements are based on full mobilization planning, but within DOD, there are degrees of mobilization planning. As explained earlier, full mobilization planning assumes that the entire war will be fought with the existing programed force structure, 24 divisions in the case of the Army, whereas "total mobilization" planning assumes that there will be an expansion of the force structure to whatever level required to win the war.

Before any substantive progress can be made in improving industrial planning with industry, DOD must separate its mobilization requirements from near-term programing requirements. Furthermore the requirements must be based on some type of total mobili-

Defense Mobilization Issues

zation planning. The primary reason the military cannot tell industry what it needs is that, for many items, the requirements computed are so low that there is simply no basis for dialogue.

Alternate Weapons

An issue that has drawn much attention recently is the negative effect of high technology in the acquisition of defense equipment. Much of the criticism focuses on the problems associated with not only the basic cost of buying the equipment, but with costs of operating and maintaining it as well. Rising unit costs driven by technology have pushed buy quantities downward to the point that we now buy things like planes in the hundreds rather than in the thousands as we did during the mobilization buildup of the 1950s.

The gradual shrinking of buy programs because of increasingly costly high technology has had two effects on the mobilization base: (1) Because quantities are so small, there is little basis to build redundant capacity, particularly in the subcontractor support structure; hence little surge capacity is available without an extended buildup of capacity. (2) Because of technological improvements, producibility is becoming an issue. The more high technology a weapon system contains the harder it is to make.

Given the current imbalance in war reserve stocks between the United States and the Soviet Union, it is clear that the United States must take action to expand procurement programs for all our equipment. To take advantage of our full industrial capability in the most timely manner, the United States should plan to produce weapons that trade-off a minor degree of capability for producibility during mobilization. It has already been noted that, during World War II, many compromises were accepted to enhance our capability to deliver weapons earlier. This idea has been proposed in a number of studies done for the Arms Control and Disarmament Agency (ACDA), primarily in the context of how to make the Nation's industrial base a credible factor in arms limitation negotiations. In fact, Mr. Fred Charles Ikle, the Director of ACDA during the Ford Administration, has made this suggestion in recent writings.¹³⁸

In application, the concept could range from the development of special prototype weapons systems that could be more easily mass-produced to planning for austere, less capable but more producible versions of existing systems. Substitutions of weapons and

the maximum use of available commercial materiel are other possibilities.

An example of a mobilization weapons system would be a tank that used the new welded armor but had diesel power rather than a turbine engine. The tank would be generally less capable but more producible than either the M-1 or the M-60, the latter requiring huge castings for the hull and turret. A simple rocket system similar to the Soviet multitube area rocket used in World War II would be easy to make and would be an effective artillery augmentation, particularly given our present limitations to making heavy gun tubes.

A step in the right direction in terms of making weapon systems more producible was the recent guidance by the Deputy Secretary of Defense directing the services to "examine evolutionary alternatives which use a lower-risk approach to technology than solutions at the frontier of technology."¹³⁷

Planning With Industry

The Ichord panel also found that DOD has neither an existing program nor an adequate plan to address the defense industrial base preparedness issue. DOD's inaction in enhancing industrial base preparedness, coupled with instability within the 5-year defense program, procurement stretch-out, inadequate budgeting, and inflation, has contributed to the deterioration of the U.S. defense industrial base, and, as a consequence, has jeopardized the national security. The panel made these specific observations:

- The Consolidated Guidance, the prime DOD programing document, does not address industrial preparedness.
- The 5-Year Defense Plan lacks stability; weapon system buys are constantly adjusted, so it is impossible for industry to do long-range planning.
- War reserve levels are dangerously low and can support only the shortest of short war scenarios.
- The current industrial preparedness planning tool used by the DOD (DD form 1519) lacks realism in establishing the potential of the defense industrial base to expand production of major weapon systems and end items and thus is an ineffective planning tool.¹³⁸

Defense Mobilization Issues

It is not true that DOD has no industrial preparedness program, notwithstanding its exclusion from the Consolidated Guidance. It is true that there is *no adequate* plan to address industrial preparedness issues. The following focuses on the quality of industrial preparedness planning.

When the research for this paper was started several months ago, the purpose was to find an alternative approach to form 1519 planning, perhaps an abandoned alternative that could be accomplished with less effort. The criticism directed at the 1519 system by the Ichord panel was not new, but as antecedents of the 1519 system were examined, it became increasingly clear that the problem is not the system but what we do with it. It also became clear that there were overriding issues that, if unresolved, would preclude effective industrial planning no matter how wonderful and ingenious the system. For example, for some years the United States has had no commonly accepted national goal and policy to be able to mobilize the economy. How can the Government realistically expect to improve planning with industry if both the bureaucracy and industry correctly perceive that nobody gives a damn?

Here are conclusions about the root causes of the failure of the form 1519 system.

Requirements

Industry has complained about not being able to get the big picture from the requirements they see. The problem is real and goes beyond that complaint in that the requirements used are simply not representative of those that will be likely to occur at mobilization.

In addition, requirements fluctuate so much from year to year that they are simply not credible to industry. Until the services develop realistical requirements based on total mobilization and stabilize them, no effective improvements in industrial planning can be made. We have to have a credible base with which to deal with industry.

The problem of mission items has to be addressed. For example, it is unreasonable for the Air Force to assume that it will require no additional Sidewinder missiles at mobilization, but that is the situation being planned for.

Staffing

When the Industry Advisory Council examined industrial mobilization planning 10 years ago, it was evident that the Armed Services Production Planning Officers (ASPPOs) were not able to provide adequate turnaround, but no recommendation was made to increase their staff. According to the current Register of Planned Emergency Producers, 110 ASPPOs now cover 9,331 plants. Of that total, 49 Defense Logistics Agency ASPPOs have responsibility for 8,689 plants. The balance of the ASPPOs/plants belong to the Army (6/44), Navy (39/346), Air Force (13/37), Maritime Administration (2/59), and Canadian Commercial Corporation (1/139).¹³⁹ It is small wonder that industry complains about a lack of followup and rare corrective actions on proposals, particularly from plants dealing with the Defense Logistics Agency (DLA) ASPPOs. The problem of sheer volume is exacerbated by the fact that DLA is right now in the process of downgrading its ASPPOs from GS-12 to GS-11. (Each plant or firm has designated an Industrial Plant Representative, who may be a vice president in charge of manufacturing. It is the ASPPO who is the Government's point of contact with the Industry Plant Representative on industrial preparedness.)

The problem of inadequate staffing is not confined to DLA. In the 1970s, as civilian employees in the Army and the other service were cut back, industrial preparedness planning personnel took a disproportionate share of the cut, at least in the Army. The commander of the Army Materiel Development and Readiness Command testified to the Ichord panel that the number of people who had been performing industrial preparedness planning had dropped from 1,096 to 473.¹⁴⁰ Not only has there been an absolute drop in numbers involved in industrial preparedness in the Army, but the people assigned to the task are known to be performing other functions. It has been suggested that the same situation exists for DLA.

Inconsistent DOD Policy

Planning with industry can hardly be effective if DOD is concurrently pushing contrary policies, such as the divestiture of Government-owned equipment and facilities. Forcing industry to dispose of its Government-owned equipment while expecting it to invest in its own equipment and retain it for future production contrary to profit motives is simply not realistic. DOD must make policy in a mobilization context. The nonuse of planned producers during the Vietnam conflict as a result of the desire to maximize competi-

Defense Mobilization Issues

tion is a classic example of DOD's failure to recognize mobilization imperatives.

Inadequate Coverage of Industry

At present, the services do not plan with substantial portions of industry because of the lack of valid requirements and the gradual erosion of the scope of planning in the context of affordability, among other reasons. Over the years, instead of providing adequate resources to do the job, the Government has continually cut back on the scope of the program. "Do a better job on a smaller program" was the rationale. The results suggest that we have done a worse job on an ever-shrinking program.

The author believes that planning should no longer be restricted to an arbitrary 2,000 items, as the current DOD guidance requires. Instead, we should determine the essential items requiring planning and fully fund the manpower to accomplish the planning. Planning should not go beyond essential items, but not all key items are planned now.

Reimbursement to Industry

Industry has often noted that it gets no payment for planning, and in fact, is often reluctant to perform it because it cannot be sure Government auditors will allow industrial planning as an overhead charge. DOD has initiated guidance providing for the payment of planning under the Data Item Description (DID). The wholesale application of the DID for industrial planning, however, may be impractical. The cost will probably be prohibitive, and unless the Government is properly staffed and financed to fund the inevitable industrial preparedness measures, little will be gained.

The use of a tax write-off may be a better alternative. At the Army's mobilization exercise for industry on 17 to 19 November 1980, Lynn Helms, then chief executive officer of Piper Aircraft Company, suggested such a write-off as an incentive to companies to perform quality industrial preparedness planning. As has been noted, tax incentives for the maintenance of facilities were considered but never effected in the 1950s. Reimbursement and tax incentives should both be explored.

Supplemental Planning

If the form 1519 approach were pursued as intended, it is not clear that any additional planning would be required. Plant surveys would have been accomplished and a dialogue created between industry and the Government as to the best military product that a plant could produce.

For example, Caterpillar might be an ideal subcontractor for items that the Army is currently having problems with, such as gears for armored vehicles. That type of information would be available if the Government had adequate industrial preparedness staff and performed plant surveys as it did before procurement districts were consolidated under the Defense Supply Agency, now the Defense Logistics Agency.

Planning has to be done in greater depth. The form 1519 system simply requires conscientious application, rather than wholesale modification.

Summary

The form 1519 approach to planning has yet to be tried in a thorough, properly staffed manner, and no surefire replacement for this approach has presented itself. As Captain James Erskine Hamilton said, in discussing the Navy's industrial mobilization planning in 1949 and the problems he was having in getting planning performed, "We are still looking for the expedient answer, some way to do this job without work, without detail. Well, it can't be done."¹⁴¹

Chapter 8

SUMMARY OF RECOMMENDATIONS FOR ACTION

A goal of the Nation should be to make the industrial capability of the United States a realistic deterrent to Soviet aggression and a powerful addition to our war-fighting ability if deterrence should fail. To achieve that goal, the executive branch and the Congress must agree that mobilization readiness is essential. Mobilization readiness is defined as a state of preparedness in terms of men under arms, military equipment, the stockpiling of critical raw materials, reserve military production capacity and basic industrial capacity to wage war on short notice. History suggests that significant improvements in industrial mobilization readiness will be achieved only when there is national agreement that mobilization readiness is important. One must accept the probability of failure unless such a national commitment is made. Based on study of the problem, broad recommendations for actions are made to make industrial mobilization readiness a reality:

Establishment of National Policy

- Establish a national policy and goal of mobilization readiness, signed by the President. Sell the policy to Congress and the public.

Summary of Recommendations for Action

- Establish a mobilization readiness czar in the Executive Office of the White House with authority similar to that of the Director of the Office of Defense Mobilization, that is, authority to direct executive branch action to achieve mobilization readiness.
- Encourage Congress to establish a focal point for the mobilization effort; perhaps restore the Joint Committee created by the Defense Production Act.
- Develop a national action plan to achieve mobilization readiness and pursue that plan.
- Establish a nonfuel minerals policy that emphasizes long-term mobilization capability.
- Require all executive branch departments to actively support mobilization planning, and assure adequate staffing of mobilization functions during any departmental cutbacks.
- Make mobilization readiness the policy against which all other policies should be measured. Examine the mobilization impact of safety, environmental, health, energy, and equal employment regulations, and seek modification in the laws as appropriate.
- Establish policies to revitalize American industry, particularly basic industry; eliminate the adversarial relationship between Government and industry.
- Examine the issue of "economic interdependence" and define an acceptable level that takes into account mobilization capability.

Department of Defense Policy

- Establish a DOD policy for a balanced mobilization readiness for a war of indefinite length, with a specific focus on industrial mobilization, and require all DOD components to comply. Specifically require the services and the Defense Logistics Agency to make industrial mobilization a bench mark in all regulations and programing decisions.

Summary of Recommendations for Action

Department of Defense Actions

- Develop a DOD action plan for mobilization readiness that integrates all parts of the whole, and pursue that plan.
- Integrate mobilization considerations into all programs and budget decisions, including investment and expense programs. Stabilize programs to the maximum extent possible.
- Provide adequate funding and civilian manpower to perform superior industrial mobilization planning, and make planning with industry a high priority.
- Reduce the administrative burdens on defense contractors.
- Modify facility investment policies to make mobilization readiness the goal. Accept the cost impacts of mobilization goals.
- Develop realistic mobilization requirements as a first priority, assuming a total mobilization scenario. Recognize full potential needs, to include support to allies. Separate buy requirements based on constrained programming from unconstrained *planning* for mobilization.
- Develop alternate weapon systems for mobilization production.
- Make mobilization readiness an overriding policy to which exception must be justified. Modify all DOD and service policies that run contrary to mobilization readiness, including low-bid contracting to less-than-best producers, Government facility phase-out program, and small-business set-asides made without assessment of impact.
- Make Government investment in mobilization base, when the profit motive is an inadequate justification for private investment. Accept the reality of the profit motive.
- Pursue tax legislation to encourage private investment in mobilization facilities, maintenance of mobilization facilities, and mobilization planning.
- Finally, remain true to the mobilization goal during down years. Recognize that the greatest need for industrial mobili-

Summary of Recommendations for Action

zation planning is not when procurement programs are healthy but when they are at their lowest ebb.

ENDNOTES

1. John J. Fialka, "The Grim Lessons of Nifty Nugget," *Army*, April 1980, p. 18.
2. John J. Fialka, "The Pentagon's Exercise 'Proud Spirit': Little Cause for Pride," *Parameters*, vol. 10, March 1981, pp. 38-40.
3. US Congress, House of Representatives, Defense Industrial Base Panel of the Committee on Armed Services, *The Ailing Industrial Base: Unready for Crisis*, Report, 96th Cong., 2nd Sess., 31 December 1980, pp. 18, 11.
4. US Congress, House of Representatives, Committee on Armed Services, *Capability of US Defense Industrial Base*, Hearings, 96th Cong., 2nd Sess., 12 November 1980, pp. 394-96.
5. US Bureau of Employment Security, *Manpower and Partial Mobilization* (Washington, D.C.: US Government Printing Office, 1951), p. 3. 1
6. Association of the United States Army, Special Report, Army Industrial Preparedness, *A Primer on What It Takes to Stay Until the War Is Over* (Arlington, Va.: May 1979), p. 3.
7. US National Security Resources Board, *Emergency Mobilization - 1949 Economic Stabilization Measures* (Washington, D.C.: US Government Printing Office, October 15, 1948), p. 6.
8. Fred Charles Ikle, "Could We Mobilize Industry?" *Wall Street Journal*, 26 December 1979, p. 6.
9. Bonneville L. Neis, *Economic Mobilization* (Fort Leavenworth, Kans.: U.S. Command and General Staff College, Procurement Planning L-4715, 1948), pp. 3, 4.
10. Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775-1955* (Washington, D.C.: Department of the Army, 1955), p. 493.
11. *Ibid.*, pp. 497-98.
12. *Ibid.*, pp. 502-03.
13. *Ibid.*, p. 517.
14. *Ibid.*, pp. 693-94.

Endnotes

15. W. Glenn Campbell, ed., *Economics of Mobilization and War* (Homewood, Ill.: Richard D. Irwin, Inc., 1952), p. 19.
16. US Office of Defense Mobilization, *Meeting Defense Demands*, Second Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 July 1951), p. 8.
17. *Ibid.*, p. 43.
18. Robert L. Finley, "The Need for Maintenance of Facilities for Defense." *The Federal Bar Journal*, vol. XIII, No. 3, April-June 1953, pp. 172-73.
19. A. H. Raskin, "How Effective is Our Industrial Mobilization?" *The New York Times*, reprint 6-8 August 1951, p. 7.
20. *The OCDM Case, Requirements, Resources, and National Defense Preparedness*, prepared for the Industrial College of the Armed Forces (Cambridge, Mass.: Harbridge House, Inc., 1959), pp. 2-3.
21. US Munitions Board, *Industrial Mobilization Plan for 1947* (Washington, D.C.: US Government Printing Office, 1947), pp. III-VIII.
22. *Ibid.*, pp. 1-20.
23. *Ibid.*, pp. 21-32.
24. *Ibid.*, pp. 33-43.
25. US Munitions Board, *Industrial Mobilization, Office of War Production, Annex Number 82 to 1947 Plan* (Washington, D.C.: US Government Printing Office, 1947), 139 pp.
26. *Industrial Mobilization Plan for 1947*, p. 10.
27. "NSC-68: A Report to the National Security Council, 14 April 1950," *Naval War College Review*, vol 27, May-June 1975, p. 82.
28. *Ibid.*, p. 70.
29. *Ibid.*, p. 83.
30. *Ibid.*, p. 68.
31. *Ibid.*, pp. 88, 91.
32. *Ibid.*, pp. 74, 102.
33. US Congress, Joint Committee on Defense Production, *Third Annual Report of the Activities of the Joint Committee on Defense Production*, 83rd Cong., 1st Sess., 20 October 1953, pp. 227-28.
34. *Ibid.*, pp. 278-302.
35. Harry B. Yoshpe, *A Case Study in Peacetime Mobilization Planning, The National Security Resources Board 1947-1953*, (Executive Office of the President, Washington, D.C.: US Government Printing Office, 30 April 1953), p. 144.
36. Rodolfo A. Correa, "The Organization for Defense Mobilization," *The Federal Bar Journal*, vol. XIII, no. 1, Sept. 1952, pp. 2-3.
37. *Ibid.*, p. 15.
38. Campbell, *Economics of Mobilization and War*, p. 5.
39. US Office of Defense Mobilization, *Building America's Might*, Report to the President, no. 1 (Washington, D.C.: US Government Printing Office, 1 April 1951), p. 2.

40. US Office of Defense Mobilization, *The Battle for Production*, Fourth Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 January 1952), pp. 3, 13, 15.
41. Campbell, *Economics of Mobilization and War*, p. 3.
42. Correa, "The Organization for Defense Mobilization," pp. 6-7.
43. Ibid., pp. 10-11.
44. US Office of Defense Mobilization, *Building America's Might*, pp. 5-7.
45. Yoshpe, *A Case Study*, pp. 160-162.
46. *The OCDM Case*, pp. 9, 10, and 32.
47. US Office of Defense Mobilization, *The Job Ahead for Defense Mobilization*, Eighth Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 January 1953), p. 19.
48. US Office of Defense Mobilization, *Building America's Might*, p. 1.
49. US Office of Defense Mobilization, *Meeting Defense Demands*, pp. 8-9.
50. US Office of Defense Mobilization, *Three Keys to Strength—Production, Stability, Free World Unity*, Third Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 October 1951), pp. 6-8.
51. John D. Hayes, *Economic Mobilization and the Navy*, lecture to Naval War College, 5 October 1953.
52. US Office of Defense Mobilization, *Defense Mobilization—The Shield Against Aggression*, Sixth Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 July 1952), pp. 9-11.
53. US Office of Defense Mobilization, *The Job Ahead for Defense Mobilization*, pp. 13-15.
54. Ibid., pp. 1-7.
55. Ibid., pp. 46-50.
56. Campbell, *Economics of Mobilization and War*, pp. 26-27.
57. US Office of Defense Mobilization, *The Job Ahead for Defense Mobilization*, pp. 20-21.
58. Ibid., pp. 19, 20-21.
59. US Office of Defense Mobilization, *New Resources Bring New Opportunities*, Seventh Quarterly Report to the President (Washington, D.C.: US Government Printing Office, 1 October 1952), pp. 15-16.
60. *The OCDM Case*, pp. 12-17.
61. US Office of Defense Mobilization, *Defense Mobilization—The Shield Against Aggression*, pp. 19, 13, 14.
62. US Office of Defense Mobilization, *New Resources Bring New Opportunities*, p. 15.
63. US Office of Defense Mobilization, *The Battle for Production*, p. 10.
64. *The OCDM Case*, pp. 10, 11.
65. Ibid., pp. 7-8.
66. Ibid., pp. 11-12.

Endnotes

67. Henry H. Fowler, "The Mobilization Base Concept," *The Federal Bar Journal*, vol. XIII, no. 3, April-June 1953, pp. 144-45.
68. *Ibid.*, p. 145.
69. US Office of Defense Mobilization, Advisory Committee on Production Equipment, *Production Capacity: A Military Reserve* (Washington, D.C.: US Government Printing Office, January 1953), pp. 1, 29.
70. *Ibid.*, pp. 5-7.
71. *Ibid.*, p. 7.
72. *Ibid.*, p. 8.
73. *Ibid.*, pp. 8-10.
74. *Ibid.*, pp. 10-11.
75. *Ibid.*, pp. 12-14.
76. *Ibid.*, pp. 14-15.
77. *Ibid.*, pp. 16-17.
78. Albert C. Lazure, "Legal and Other Problem Areas of Military Mobilization Base Planning," *The Federal Bar Journal*, vol. XIII, no. 3, April-June 1953, pp. 163-64.
79. Finley, "The Need for Maintenance of Facilities for Defense," pp. 171-78.
80. Reynold Bennett, "Tax Relief—An Aid to the Retention of the Mobilization Base," *The Federal Bar Journal*, vol. XIII, no. 3, April-June 1953, pp. 185-88.
81. Office of the Assistant Secretary of Defense, *Industrial Mobilization Programs*, prepared for meeting of NATO High National Production Authorities to be held in Paris, January 1955, pp. 17-18 and appendix.
82. Sterling Green, "Here's Where War Mobilization Stands," *Nation's Business*, vol. 42, no. 5, May 1954, pp. 46-50.
83. *The OCDM Case*, pp. 19-20.
84. US Office of Defense Mobilization, *Report of the Office of Defense Mobilization to the Joint Committee on Defense Production for the period September 15, 1955—February 29, 1956* (Washington, D.C., 12 March 1956), pp. 2, 7, 8.
85. American Ordnance Association, *Industrial Mobilization in a Limited War, Report of First Annual Meeting, Mobilization Readiness Division, 12-13 October 1966* (Washington, D.C., 1966), p. 3, Sect. 5.
86. Office of the Assistant Secretary of Defense, *Industrial Mobilization Programs*, p. 1.
87. *Ibid.*, pp. 3-8.
88. *Ibid.*, pp. 9-10.
89. *Ibid.*, pp. 11-12 and appendix.
90. *Ibid.*, pp. 13, 16, 19-20.
91. Army Signal Supply Agency, *Armed Forces Regional Industrial Symposium Proceedings*, Summation of Industrial Mobilization Military-Management Conference at Bellevue-Stratford Hotel, Philadelphia, Pen-

Endnotes

- na., 19-20 January 1956, Multit, pp. 5-6; Swart, pp. 1-11; Newby, pp. 12-14.
92. Major Clarence E. Dalpra and Major William W. Saunders, *An Analysis of Industrial and Defense Planning for Undeclared Limited War*, A Student Thesis of the School of Systems and Logistics of the Air Force Institute of Technology (Wright-Patterson AFB, Ohio, August 1967), pp. 4, 23-25.
93. Ibid., pp. 5, 26-28.
94. American Ordnance Association, *Industrial Mobilization in a Limited War*, p. 11, Sect. III.
95. Joint Logistics Review Board, *Logistic Support in the Vietnam Era*, Monograph 12, *Logistics Planning*, (Washington, D.C., 1970), Chap. VII, pp. 113-128.
96. American Ordnance Association, *Industrial Mobilization in a Limited War*, pp. 6-7, Sect. V. 1
97. American Ordnance Association, *Progress Report on the Implementation of DOD Manual 4005.3M, Industrial Mobilization Production Planning*, Washington, D.C., 1969, Exhibit B.
98. Ibid., Exhibit A.
99. Ibid., Exhibit H.
100. Ibid., Exhibit K.
101. National Security Industrial Association, letter to the President, 10 September 1970.
102. US Department of Defense, *Department of Defense Industrial Preparedness Program Seminar*, 13 October 1971, Washington, D.C., 1971, p. 14.
103. Ibid., pp. 16-19.
104. Ibid., pp. 22-45.
105. Ibid., pp. 48-69.
106. Defense Industrial Base Panel of the House Armed Services Committee, *The Ailing Industrial Base*, p. 11.
107. Ibid., pp. 12-14.
108. US Congress, Joint Committee on Defense Production, *Civil Preparedness Review, Part I, Emergency Preparedness and Industrial Mobilization*, Report, 95th Cong., 1st Sess., February 1977, pp. 61-62.
109. Interview with Fred V. Jacobs, Manager, Defense Products Department of Caterpillar Tractor Co., 16 January 1981.
110. Office of the Under Secretary of Defense for Research and Engineering, *Report of the Defense Science Board 1980 Summer Study Panel on Industrial Responsiveness*, (Washington, D.C., January 1981), pp. 29-36.
111. Defense Industrial Base Panel of the House Armed Services Committee, *The Ailing Industrial Base*, pp. 15-16.
112. Ibid., p. 24.
113. Ibid., p. 31.

Endnotes

114. Ibid., pp. 31-35, 37.
115. Ibid., p. 42.
116. American Iron and Steel Institute, *Steel at the Crossroads: The American Steel Industry in the 1980s*, Washington, D.C., January 1980, 1pp. 17-20, 47-48.
117. Defense Industrial Base Panel of the House Armed Services Committee, *The Ailing Industrial Base*, pp. 43-44.
118. Ibid., pp. 44-47.
119. Ibid., p. 48.
120. Campbell, *Economics of Mobilization and War*, p. 5.
121. Joint Congressional Committee on Defense Production, *Civil Preparedness Review*, pp. 8-9.
122. House Armed Services Committee, *Capability of US Defense Industrial Base*, pp. 1337-38.
123. American Defense Preparedness Association, *An ADPA White Paper, Defense Readiness—Force Sustainability and Industrial Preparedness. "Why We Are Concerned"*, Arlington, Va., August 1980, p. 15.
124. House Armed Services Committee, *Capability of US Defense Industrial Base*, pp. 46-51.
125. Defense Industrial Base Panel of the House Armed Services Committee, *The Ailing Defense Industrial Base*, pp. 2-3.
126. "NSC-68," pp. 54, 90.
127. Paul Bracken, "Mobilization in the Nuclear Age," *International Security*, vol. 3, no. 3, Winter 1978-79, p. 90.
128. Ikle, "Could We Mobilize Industry?" p. 6.
129. Bracken, "Mobilization in the Nuclear Age," pp. 77-79, 82-90.
130. System Planning Corporation, *Estimating US and Soviet Latent Pre-war Industrial Mobilization Potentials*, Arlington, Va., June 1979, pp. A-23-24.
131. Michael Checinski, *A Comparison of the Polish and Soviet Armaments Decisionmaking Systems* (Santa Monica, Calif.: Rand Corporation, January 1981), p. 48.
132. Lecture by Sumer C. Aggarwal, Professor of Management Science, Pennsylvania State University, 8 April 1981.
133. Robert L. Goldrich, "Mobilization for the Apocalypse," *Army*, 1 May 1978, pp. 22-24.
134. Fred Charles Ikle, "Preparing for Industrial Mobilization: The First Step Toward Full Strength," *National Security in the 1980s: From Weakness to Strength* (San Francisco, Calif.: Institute for Contemporary Studies, 1980), p. 63.
135. Secretary of Defense, *Industrial Mobilization Planning*, memo to the Secretaries of the Military Departments, the Assistant Secretary of Defense (IL) and the Director, Defense Supply Agency, 4 March 1966.
136. Ikle, "Could We Mobilize Industry?" p. 6, and "Preparing for Industrial Mobilization," pp. 66-67.

Endnotes

137. Richard Halloran, "Weinberger Aide Orders Military to Cut Costs by Revising Buying Policy," *New York Times*, 30 April 1981.
138. Defense Industrial Base Panel of the House Armed Services Committee, *The Ailing Defense Industrial Base*, p. 18.
139. Defense Logistics Agency, *Register of Planned Emergency Producers—DOD 4005.3-H April 1980* (Alexandria, Va.: US Government Printing Office, 1 April 1980), p. ix.
140. House Armed Services Committee, *Capability of US Defense Industrial Base*, p. 740.
141. Capt. James Erskine Hamilton, *Industrial Mobilization Planning Indoctrination Course—Ninth Session* (Washington, D.C.: Bureau of Ships, 1949), p. 12.

Selected Bibliography

Cited References

Aggarwal, Sumer C. Professor of Management Science, Pennsylvania State University, Lecture, 8 April 1981.

American Defense Preparedness Association. *An ADPA White Paper, Defense Readiness—Force Sustainability and Industrial Preparedness*. Arlington, Va., August 1980.

American Iron and Steel Institute. *Steel at the Crossroads: The American Steel Industry in the 1980s*. Washington, D.C., January 1980.

American Ordnance Association. *Progress Report on the Implementation of DOD Manual 4005.3-M, Industrial Mobilization Production Planning*. Washington, D.C., 1969.

_____. Report of the First Annual Meeting, Mobilization Readiness Division, 12-13 October 1966, *Industrial Mobilization in a Limited War*. Washington, D.C., 1966.

Army Signal Supply Agency. *Armed Forces Regional Industrial Symposium Proceedings*. Summation of Industrial Mobilization Military-Management Conference at Bellevue-Stratford Hotel, Philadelphia, Penna., 19-20 January 1956.

Association of the United States Army. Special Report, Army Industrial Preparedness, *A Primer on What It Takes to Stay Until the War is Over*. Arlington, Va., May 1979.

Bennett, Reynold. "Tax Relief—An Aid to the Retention of the Mobilization Base." *The Federal Bar Journal*, vol. XIII, April-June 1953, pp. 179-88.

Bracken, Paul. "Mobilization in the Nuclear Age." *International Security*, vol. 3, Winter 1978-79, pp. 74-93.

Selected Bibliography

- Campbell, W. Glenn, ed., *Economics of Mobilization and War*. Homewood, Ill.: Richard D. Irwin, inc., 1952.
- Checinaki, Michael. *A Comparison of the Polish and Soviet Armaments Decision-making Systems*. Santa Monica, Calif.: Rand Corporation, January 1981.
- Correa, Rudolfo A. "The Organization for Defense Mobilization." *The Federal Bar Journal*, vol. XIII, September 1952, pp. 1-15.
- Daipra, Clarence E., Major, and Saunders, William W., Major. *An Analysis of Industrial and Defense Planning for Undeclared Limited War*. Wright-Patterson AFB, Ohio: School of System and Logistics, Air Force Institute of Technology, August 1967.
- Defense Logistics Agency. *Register of Planned Emergency Procedures—DOD 4005.3-H April 1980*. Alexandria, Va.: US Government Printing Office, 1 April 1980.
- Fialka, John J. "The Grim Lessons of Nifty Nugget." *Army*, vol. 30, April 1980 pp. 14-18.
- Fialka, John J. "The Pentagon's Exercise 'Proud Spirit': Little Cause for Pride." *Parameters*, vol. 10, March 1981, pp. 38-41.
- Finley, Robert L. "The Need for Maintenance of Facilities for Defense." *The Federal Bar Journal*, vol. XIII, April-June 1953, pp. 171-78.
- Fowler, Henry H. "The Mobilization Base Concept." *The Federal Bar Journal*, vol. XIII, April-June 1953, pp. 144-54.
- Green, Sterling. "Here's Where War Mobilization Starts." *Nation's Business*, vol 42, May 1954, pp. 46-54.
- Goldrich, Robert L. "Mobilization for the Apocalypse." *Army*, vol 28, May 1978, pp. 22-25.
- Halloran, Richard. "Weinberger Aide Orders Military to Cut Costs by Revising Buying Policy." *New York Times*, 30 April 1981.
- Hamilton, James Erskine, Capt. *Industrial Mobilization Planning Indoctrination Course—First thru Ninth Session*. Washington, D.C.: Bureau of Ships, 1949.
- Hayes, John D. *Economic Mobilization and the Navy*. Lecture to Naval War College, October 5, 1953.
- Ikle, Fred Charles. "Could We Mobilize Industry?" *Wall Street Journal* 26 December 1979, p. 6.
- _____. "Preparing for Industrial Mobilization: The First Step Toward Full Strength." *National Security in the 1980s: From Weakness to*

Selected Bibliography

- Strength*. San Francisco, Calif.: Institute for Contemporary Studies, 1980.
- Jacobs, Fred V. Manager, Defense Products Department of Caterpillar Tractor Co., Interview, 16 January 1981.
- Joint Logistics Review Board. *Logistic Support in the Vietnam Era, Monograph 12, Logistics Planning*. Washington, D.C.: 1970, Chap. VII.
- Kriedberg, Marvin A., and Henry, Merton G. *History of Military Mobilization in the U.S. Army, 1775-1945*. Washington, D.C.: Department of the Navy, 1955.
- Lazure, Albert C. "Legal and Other Problem Areas of Military Mobilization Base Planning." *The Federal Bar Journal*, vol XIII, April-June 1953, pp. 155-170.
- National Security Industrial Association. Letter to the President. 10 September 1970.
- Neis, Bonneville L. *Economic Mobilization*. Fort Leavenworth, Kans.: U.S. Command and General Staff College, Procurement Planning L-4715, 1948.
- "NSC-68: A Report to the National Security Council, April 14, 1950." *Naval War College Review*, vol. 27, May-June 1975, pp. 51-108.
- Office of Assistant Secretary of Defense. *Industrial Mobilization Programs*. Prepared for meeting of NATO High National Production Authorities to be held in Paris, January 1955.
- Office of the Under Secretary of Defense for Research and Engineering. *Report of the Defense Science Board 1980 Summer Study Panel on Industrial Responsiveness*. Washington, D.C.: January 1981.
- Raskin, A. H. "How Effective is Our Industrial Mobilization." *New York Times*, reprint, 6-8 August 1951, p. 7.
- Secretary of Defense. *Industrial Mobilization Planning*. Memo to the Secretaries of the Military Departments, the Assistant Secretary of Defense (Installations and Logistics) and the Director, Defense Supply Agency, 4 March 1966.
- System Planning Corporation. *Estimating U.S. and Soviet Latent Prewar Industrial Mobilization Potentials*. Arlington, Va., June 1979.
- The OCDM Case, Requirements, Resources and National Defense Preparedness*. Cambridge, Mass., Harbridge House, Inc., 1959.
- US Bureau of Employment Security. *Manpower and Partial Mobilization*. Washington, D.C.: US Government Printing Office, 1951.

Selected Bibliography

US Congress. House of Representatives. Defense Industrial Base Panel of the Committee on Armed Services. *The Ailing Industrial Base: Unready for Crisis*. Report, 96th Cong., 2nd Sess., December 1980.

US Congress. House of Representatives. Committee on Armed Services. *Capability of U.S. Defense Industrial Base*. Hearings, 96th Cong., 2nd Sess., November 1980.

US Congress. Joint Committee on Defense Production. *Civil Preparedness Review, Part I, Emergency Preparedness and Industrial Mobilization*. Report, 95th Cong., 1st Sess., February 1977.

_____. *Third Annual Report of the Activities of the Joint Committee on Defense Production*. 83rd Cong., 1st Sess., October 1953.

US Department of Defense. *Industrial Preparedness Program Seminar*. Washington, D.C., 1971.

US. Munitions Board. *Industrial Mobilization Plan for 1947*. Washington, D.C., US Government Printing Office, 1947.

_____. *Industrial Mobilization, Office of War Production, Annex Number 82 to 1947 Plan*. Washington, D.C.: US Government Printing Office, 1948.

US National Security Resources Board. *Emergency Mobilization Plan—1949 Economic Stabilization Measures*. Washington, D.C.: US Government Printing Office, 1948.

U.S. Office of Defense Mobilization. Advisory Committee on Production Equipment. *Production Capacity: A Military Reserve*. Washington, D.C.: US Government Printing Office, January 1963.

US Office of Defense Mobilization. *Building America's Might*. Report to the President, No. 1. Washington, D.C., US Government Printing Office, April 1951.

_____. *Meeting Defense Demands*. Second Quarterly Report to the President. Washington, D.C.: US Government Printing Office, July 1951.

_____. *Three keys to Strength—Production, Stability, Free World Unity*. Third Quarterly Report to the President. Washington, D.C.: US Government Printing Office, October 1951.

_____. *The Battle for Production*. Fourth Quarterly Report to the President. Washington, D.C.: US Government Printing Office, January 1952.

_____. *Defense Mobilization—The Shield Against Aggression*. Sixth Quarterly Report to the President. Washington, D.C.: US Government Printing Office, July 1952.

Selected Bibliography

_____ *New Resources Bring New Opportunities. Seventh Quarterly Report to the President.* Washington, D.C: US Government Printing Office, October 1952.

_____ *The Job Ahead for Defense Mobilization. Eighth Quarterly Report to the President.* Washington, D.C: US Government Printing Office, January 1953.

_____ *Report of the Office of Defense Mobilization to the Joint Committee on Defense Production for the Period 15 September 1955-29 February 1956.* Washington, D.C.: March 1956.

Yoshpe, Harry B. *A Case Study in Peacetime Mobilization Planning, The National Security Resources Board, 1947-1953.* Washington, D.C.: Executive Office of the President, US Government Printing Office, April 1953.

Other References

Chamber of Commerce of the United States. *A Blueprint for Industrial Preparedness.* Washington, D.C., June 1949.

Department of Defense. *DOD 4005.3-M Industrial Mobilization Production Planning Manual.* Washington, D.C.: US Government Printing Office, December 1968.

_____ *DOD 4005.3-M Industrial Preparedness Planning Manual.* Washington, D.C.: Office of the Assistant Secretary of Defense, July 1972.

Elliot, William Y. *Mobilization Planning and the National Security (1950-1980): Problems and Issues.* Washington, D.C.: Library of Congress, April 1950.

Ellison, John E. "The Beleaguered Arsenal," *Sea Power*, vol. 28, December 1980 pp. 25-26, 28, 32, 35-37.

Ennis, Harry F. *Peacetime Industrial Preparedness for Wartime Ammunition Production.* Washington, D.C.: National Defense University Research Directorate, 1980.

Fallows, James. "American Industry: What Ails It, How to Save It," *Atlantic*, vol. 246, September 1980, pp. 35-50.

_____ "America's High-Test Weaponry," *Atlantic*, vol. 247, May 1980, pp. 21-33.

Felser, Max E. *Economic Policy and War Potential.* Washington, D.C.: Public Affairs Press, 1964.

Foster, Richard B., and Hoerber, Francis P. "Limited Mobilization: A Strategy for Preparedness and Deterrence in the Eighties," *Orbis*, vol. 24, Fall 1980, pp. 439-57.

Selected Bibliography

- Freidman, Norman. "The Soviet Mobilization Base," *Air Force Magazine*, vol. 62, March 1979, pp. 65-67, 70-71.
- _____. "Surge Mobilization: The United States Versus the Soviet Union," *Proceedings of the National Security Affairs Conference*. National Defense University, 1979.
- Freidman, Norman, and Gray, Colin S. *US and USSR Mobilization Policies. Volume I: Net Assessment*. Research Report No. HI-2738-RR. Croton-on-Hudson, N.Y.: Hudson Institute, Inc., 15 May 1979.
- Gansler, Jacques S. *Defense Industry*. Cambridge, Mass.: MIT Press, 1980.
- Heath, Horton. *Defense Mobilization: What Management is Doing*. New York, N.Y.: Controllership Foundation, Inc., 1951.
- "Industry on Guard," *Modern Industry*. Reprint by the Industrial College of the Armed Forces, 15 October 1950.
- Janeway, Elliot. "Drive and Direction of Mobilization," *Harvard Business Review*, vol. 29, reprint, September 1951, pp. 99-109.
- Little, Arthur D., Inc. *Industrial Preparedness in an Arms Control Environment: A Study of the Potential Impact of Sharp Increases in Military Procurement*. Cambridge, Mass.: A. D. Little, 1974.
- Morgan, John D., Jr. "Strategic Materials: Important Factors in Readiness," *The Military Engineer*, November-December 1980, pp. 413-17.
- Metropolitan Life Insurance Company. *Manpower Planning for National Emergency*. New York, N.Y.: 1950.
- Munitions Board. *Military Procurement: A Guide for Joint Industry—Military Procurement Planning*. Washington, D.C.: National Military Establishment, June 1948.
- Office of the Assistant Secretary of Defense (Supply and Logistics). *Manual—Production Allocation Program, Draft*. Washington, D.C.: Department of Defense, October 1958.
- US Department of the Army. *Review of Army Mobilization Planning (RAMP)*. Washington, D.C.: Office of the Deputy Chief of Staff for Research, Development and Acquisition, 1975.
- US General Accounting Office. *Restructuring Needed of Department of Defense Program for Planning with Private Industry for Mobilization Production Requirements*. Washington, D.C.: 1977.
- US Office of Defense Mobilization. *Strength for the Long Run*. Fifth Quarterly Report to the President. Washington, D.C.: US Government Printing Office, April 1953.

Selected Bibliography

_____ *Report of the Office of Defense Mobilization to the Joint Committee on Defense Production for the Period 1 July 1954-28 February 1955.* Washington D.C., 1955.

_____ *Report of the Office of Defense Mobilization to the Joint Committee on Defense Production for the Period 1 March-30 June 1955.* Washington D.C., 1955.

_____ *Defense Mobilization in a Full Economy, Report to the Joint Committee on Defense Production.* Washington, D.C, 14 March 1957.

Vawter, Roderick L. "Industrial Base Mobilization," *Resource Management Journal*, Winter 1980, pp. 8-17.